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ABSTRACT

A program to expand and improve magnet schools in Texas' Austin Independent School District (AISD) was funded by the U.S. Department of Education in 1985-1986. Results of the program were: (1) increased and more stable enrollments in magnet elementary schools; (2) large achievement gains in readings, mathematics and science for students in a high school science magnet program; (3) increased enrollment at a magnet desegregated high school; (4) less overcrowding in nonmagnet elementary schools; (5) an increase in the number of students enrolled in honors courses at the magnet high school; and (6) positive student evaluations of the magnet science academy. Program outcomes which caused some concerns were: (1) a transfer policy which restricted the acceptance of many students to the magnet foreign language program; (2) the lack of applications from minorities and females in the science program on par with their representation in the district; and (3) the lack of significant progress in developing a science magnet curriculum at the elementary school level. This report includes 12 appendices which present detailed graphic and descriptive data on student characteristics, selections, achievement, staff development, curriculum, and expenditures in the magnet programs. (VM)

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Research and Evaluation

MAGNET SCHOOLS ASSISTANCE PROGRAM
FINAL TECHNICAL REPORT: Fall 1986

Publication No. 85.41

September 30, 1986

Austin Independent School District

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OFFICE OF RESEARCH AND EVALUATION
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MAGNET SCHOOLS ASSISTANCE PROGRAM
FINAL TECHNICAL REPORT: Fall 1986

Publication No. 85.41

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September 30, 1986

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The project presented or reported herein was performed pursuant to a grant from the Department of Education. However, the opinions expressed herein do not necessarily reflect the position or policy of the Department, and no official endorsement by the Department should be inferred.

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EXECUTIVE SUMMARY

MAGNET SCHOOL ATTRACTIONS:
MAGNET SCHOOLS ASSISTANCE PROGRAM, 1985-86

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MAJOR POSITIVE FINDINGS:

1. Magnet programs have helped to stabilize enrollment at the elementary campuses over the last three years. At all six magnet schools, enrollment increased during either the first or second year of the program.

2. Science Academy students made large achievement gains in reading, mathematics, and science. Ninth-grade students made larger gains than similar, high-achieving students districtwide in reading and science; tenth-grade students made larger gains than similar students in mathematics.

3. After steady declines since desegregation began, enrollment at LBJ High School increased 14% in 1985-86, the first year of the Science Academy.

4. Elementary programs have been successful in attracting transfer students from overcrowded South Austin schools.

5. The number of students enrolled in honors courses at LBJ increased 55% as a result of transfers to the Science Academy. Enrollment at other campuses was not significantly affected by the loss of transfer students.

6. Eighty-six percent of the Science Academy students reported that they would encourage other interested students to apply.

MAJOR FINDINGS REQUIRING ACTION

1. The Murchison Foreign Language Program was unable to accept many potential transfer students because of transfer policy restrictions.

2. Although minorities and females were accepted into the Science Academy at rates comparable to their representation in the pool of applicants, more need to be encouraged to apply in order to obtain enrollment rates on parity with the District ethnic and gender distributions.

3. While efforts were made toward the objective of coordinating a K-12 science magnet curriculum, no significant progress was made at the elementary level. Progress was made toward articulating the secondary science magnets' curricula.

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GENERAL OVERVIEW

WHAT ARE MAGNET SCHOOLS?

Magnet schools have a theme or curricular focus designed to provide alternatives to or enrichment of the regular District curriculum. Magnet schools typically are open for enrollment by any student in the District wishing to attend, rather than only by students in the school's attendance area. Magnet schools in AISD offered programs that were campuswide or based upon the school-within-a-school concept.

The magnet school programs in the Austin Independent School District were supported by a one-year grant for 1985-86 from the Department of Education under the Education for Economic Security Act, Magnet Schools Assistance Program. The grant provided funds for the expansion and improvement of programs at six elementary schools and for the implementation of a junior high school foreign language magnet program and a high school science-math-technology magnet program.

According to the grant proposal, the stated objectives of the magnet programs were: 1) to improve the overall enrollment as well as the ethnic balance at the magnet campuses, 2) to provide educational alternatives through the enriched curriculum and to increase interest, knowledge, and understanding of students in the content areas of focus, and 3) to increase educational opportunities for traditionally underrepresented populations (e.g., minorities and females).

Figure 1 illustrates how the federal grant was distributed among the programs and for administration and evaluation.

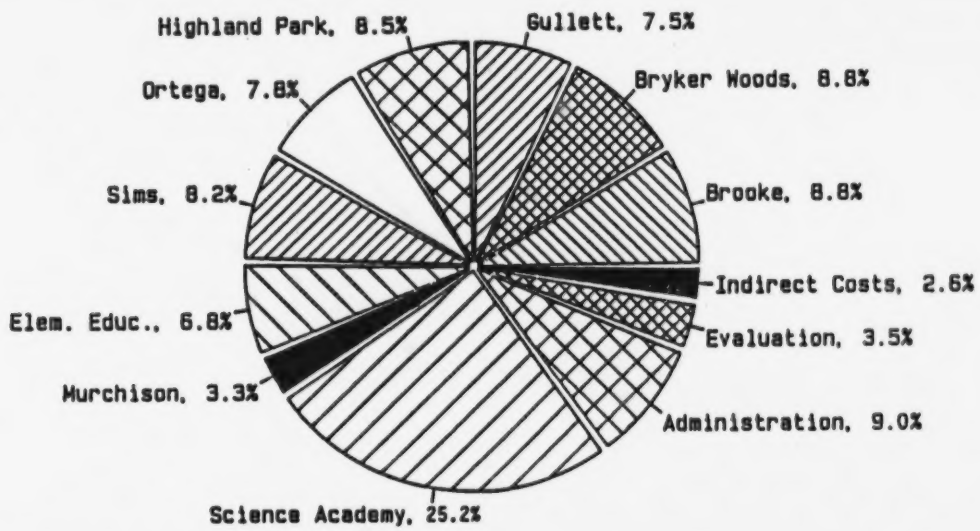


Figure 1. DISTRIBUTION OF MAGNET FUNDS TO CAMPUSES AND ADMINISTRATION, 1985-86

Elementary Total = $543,286
Secondary Total = $274,676
Admin/Eval/Indirect = $145,988

The figure below presents a brief description of each magnet program offered in AISD.

BROOKE (K, 4-6): Fine Arts/Humanities. The objective of the fine arts/humanities magnet was to integrate fine arts with the essential elements, that is, to express the curriculum through music, art, or drama. All students received fine arts enrichment through the classroom teacher, the campus fine arts coordinator, and by attendance at performances or special events and by participation in activities offered by visiting or part-time teachers.

BRYKER WOODS (K-3): Outdoor Education/Environmental Study. All students received enriched science instruction from a magnet science teacher four days a week on a rotating schedule by grade level. Emphasis was on natural science field and laboratory studies which made use of the outdoor classroom and environmental resources.

GULLETT (4-6): Science/Computers. Students were selected for admission into the magnet program at Gullett. A variety of modules, primarily in science and computers, were offered throughout the year. Students took one module each four-week session in a 45 minute after-school period four days a week.

HIGHLAND PARK (K-3): Science/Computers. All students received enriched instruction in science through hands-on experience in the Outdoor Learning Center with the guidance of a magnet science lab teacher. Teachers also took their classes to a computer laboratory for instruction or drill and practice.

ORTEGA (K, 4-6): Humanities Via Literature and Social Studies. Special emphasis was placed on the humanities and social studies curriculum as a means of integrating the entire curriculum. Lessons and concepts were reinforced or expanded through social studies activities and field trips.

SIMS (1-3): Science, Computers, Fine Arts. All first through third graders were provided with enrichment activities in science, computers, dance, and drama. Each grade level participated in science, drama, or dance enrichment during three ten-week trimesters on a rotating basis. Computer instruction was offered to all students, including kindergarteners, throughout the year.

MURCHISON (7-8): Foreign Languages. Students had a choice of learning one or more languages from among four offered: French, German, Latin, and Spanish. Language instruction was designed to be supplemented through the use of computer and video equipment placed in the language classroom. Students were exposed to language and cultural experiences through a variety of instructional materials and media.

LBJ (9-11): Science Academy of Austin. Students with an interest in science and the motivation to participate in an enriched science program were selected for the science magnet program. Students took extra math and science courses and had the opportunity to work with computers and laboratory science equipment, including an electron microscope.

Figure 2. MAGNET SCHOOL PROGRAMS IN THE AUSTIN INDEPENDENT SCHOOL DISTRICT

HOW WERE THE ELEMENTARY MAGNET PROGRAMS IMPLEMENTED?

Implementation of the elementary magnet programs began in the 1982-83 school year at four campuses and in 1983-84 at Brooke and Ortega. During 1985-86, enhancement of the programs was assisted by a variety of activities and resources supported by grant funds, such as curriculum development, staff development, field trips, and through the acquisition of equipment, instructional supplies, and resource materials.

In addition to the general objectives listed in the introduction, each program emphasized different content areas and curricula with concomitant objectives. The grant proposal also stated additional common objectives for the elementary programs:

- To contribute to the enrichment of the regular District curriculum in basic academic areas offered at the magnet campuses,
- To improve District curriculum in content areas offered by magnet schools by using magnet campuses as model demonstration sites,
- To develop a districtwide elementary magnet science curriculum to interface with the secondary science magnet program, and
- To develop two models for magnet school programs in the humanities, one with a literature/fine arts emphasis, the other with a literature/social studies focus.

Each of the six elementary campuses had a different emphasis. The magnet program at each campus offered enrichment in the curricular areas of focus, which was designed to supplement, not supplant, the District's regular curriculum in those areas.

WHO WAS SERVED?

Figure 3 indicates the percentage of students by ethnicity and gender served by the magnet programs in AISD for the school year 1985-86.

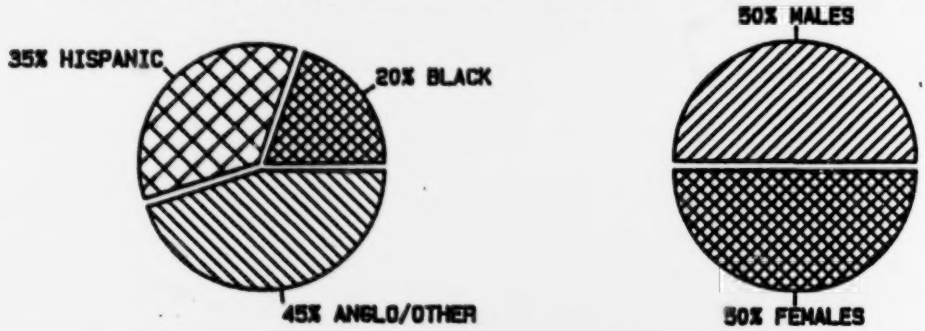


Figure 3. ELEMENTARY MAGNET STUDENTS: ETHNICITY AND SEX CHARACTERISTICS.

Figure 4 presents the student characteristics by school, including the percentage of students who were eligible for the free or reduced-price lunch program. The enrollment figures were obtained from the Average Daily Membership Report for the first six weeks, and the percent low-income was taken the last day of school, June 3, 1986. At Gullett and Sims, where not all students attending the school were participants, the figures presented were based only on students in the magnet program.

SCHOOL	ETHNICITY			SEX		PERCENT	STUDENTS
	BLK	HSP	A/O	MALE	FEMALE	LOW INCOME	SERVED
BROOKE	4%	69%	27%	54%	46%	55%	325
BRYKER WOODS	33%	15%	52%	49%	51%	32%	224
GULLETT	8%	5%	87%	57%	43%	6%	165
HIGHLAND PARK	2%	35%	63%	52%	48%	28%	382
ORTEGA	22%	46%	32%	46%	54%	55%	307
SIMS	62%	13%	25%	45%	55%	58%	212

Figure 4. ETHNICITY, SEX, LOW-INCOME STATUS, AND ENROLLMENT OF STUDENTS SERVED IN ELEMENTARY MAGNET PROGRAMS.

WHO TRANSFERRED TO THE PROGRAMS?

Participation in the elementary magnet programs via voluntary transfer to a magnet campus was open to all students districtwide who were eligible to transfer under the stipulations of the District's transfer policy. Essentially, a student was not eligible if he/she was reassigned for desegregation or if the student was in the minority ethnic group at the home school. The program at Gullett required students to submit an application and to be tested and screened before being admitted to the program. Once admitted, a student's transfer request was approved.

One indication of a magnet school's attracting power is the number of transfers granted to students for the magnet program relative to the number of transfers granted for all other reasons.

Figure 5 on the following page indicates the total number of transfers, and the proportion of the total represented by magnet transfers for each campus during 1985-86 as an indication of each program's attracting power.

1985-86 TRANSFERS TO ELEMENTARY MAGNET SCHOOLS

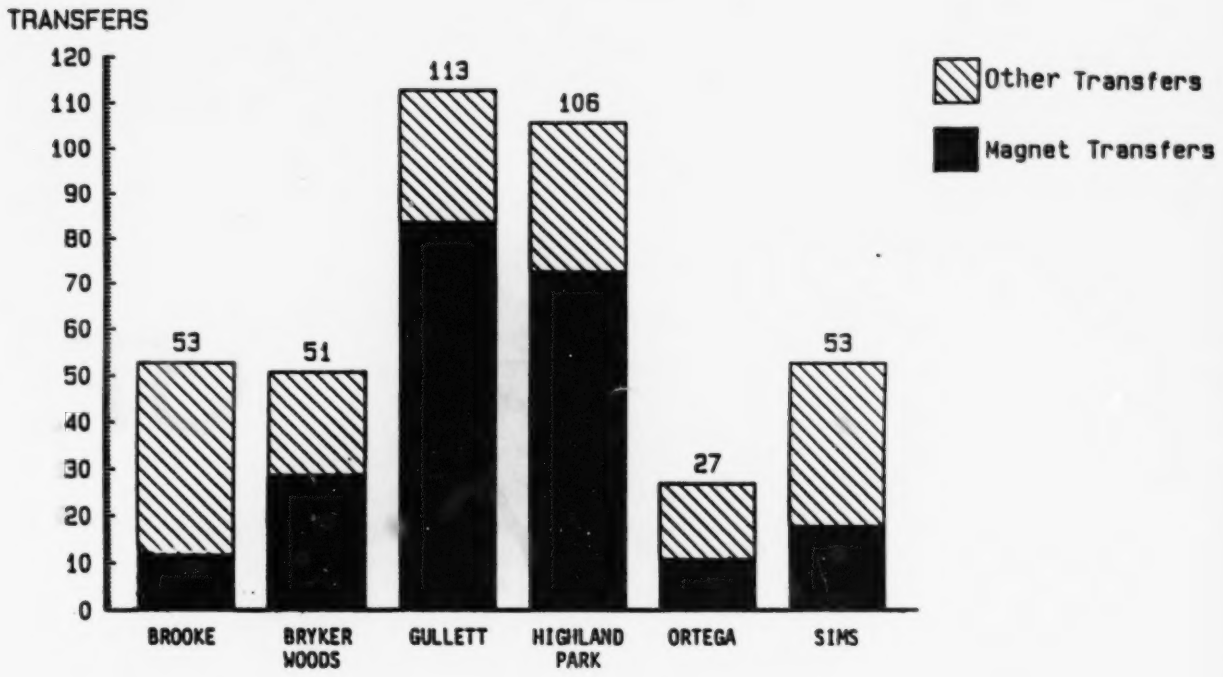


Figure 5. ELEMENTARY MAGNET TRANSFERS AS PORTION OF TOTAL TRANSFERS.

In order to examine the drawing power of the magnet programs on students of the three major ethnic groups, the percentage of total transfers was calculated for each group. The number of magnet transfers within each ethnic group and the percentage of the total transfers represented by the magnet transfers were also found. The schools were grouped according to their pre-desegregation status, either minority-dominant or Anglo-dominant.

	TOTAL TRANSFERS (Percent of Total)			MAGNET TRANSFERS (Percent of Ethnic Group)		
	BLK	HSP	A/O	BLK	HSP	A/O
Formerly Minority-Dominant:						
Brooke	5	34	14	2	2	8
	(9%)	(64%)	(26%)	(17%)	(17%)	(66%)
Ortega	4	9	14	0	1	10
	(15%)	(33%)	(52%)	(0%)	(9%)	(91%)
Sims	33	2	18	7	0	11
	(62%)	(4%)	(34%)	(39%)	(0%)	(61%)
Formerly Anglo-Dominant:						
Bryker Woods	3	2	46	1	2	26
	(6%)	(4%)	(90%)	(3%)	(7%)	(90%)
Gullett	23	7	83	14	5	65
	(20%)	(6%)	(73%)	(17%)	(6%)	(77%)
Highland Park	7	25	74	6	8	59
	(7%)	(23%)	(70%)	(8%)	(11%)	(81%)

Figure 6. ETHNIC COMPOSITION OF TRANSFER STUDENTS AT MAGNET CAMPUSES.

With respect to total transfers, the formerly minority-dominant schools received mostly minority transfer students (except Ortega where minority and non-minority transfers were nearly equal). However, with respect to magnet transfers, the programs were being successful in attracting Anglo students voluntarily to those campuses where Anglo students were in the minority.

The transfers to formerly Anglo-dominant schools consisted predominantly of Anglo students (70% to 90%). Anglo students had a slight majority at those campuses in 1985-86, because Anglos were being drawn from over-crowded south Austin schools, which were predominantly Anglo.

WHAT WAS THE COST PER PUPIL FOR THE ELEMENTARY PROGRAMS?

Funding for the programs came primarily from the federal grant; however, local funds were allocated for partial program support and for the transportation of transfer students residing outside the attendance area to and from the campuses and for field trips.

Capital outlay allocations represented a substantial portion of the funds in some cases. Therefore, a useful life expectancy of five years was assumed for capital outlay assets in order to figure the one-year depreciation value. One-fifth of the capital outlay funds was added to all remaining funds and then divided by the number of students to obtain a more realistic picture of the per-student-cost for each program.

All calculations were based on the grant and local funds allocated and not on the amounts actually expended. The number of students was based on the average daily membership for the first semester. Transportation costs were based on the number of transfer students who requested bus service. Because Gullett had after-school activities, most magnet students needed transportation home. **The District provided transportation to 184 elementary magnet transfer students at a per-pupil cost of $1,937.73 for a total of $356,542.**

Figure 7 below presents the cost for instructing each magnet student over and above the regular cost for instruction at each campus. Costs are distributed according to the local and federal funding sources in order to identify the actual cost to the District. The per-pupil costs have been adjusted downward to reflect the depreciation of capital outlay assets over a five-year lifespan. One-fifth of the capital outlay funds were added to all other funds allocated to calculate the adjusted magnet costs. Capital outlay expenses are typically initial costs which do not continue throughout the life of a program. The costs associated with the local magnet funds represents costs over and above the per pupil amount expended by AISD for regular instruction.

	BROOKE	BRYKER WOODS	GULLETT	HIGHLAND PARK	ORTEGA	SIMS
STUDENTS	325	224	160	382	307	212
LOCAL MAGNET FUNDS:	$16,355.00	11,900.00	28,750.00	14,370.00	18,250.00	24,800.00
FEDERAL MAGNET FUNDS:	$84,380.00	85,170.00	71,876.00	81,600.00	75,380.00	79,450.00
ADJUSTED MAGNET COSTS:						
LOCAL:	$ 49.09	53.13	179.69	36.78	59.45	116.98
FEDERAL:	$ 185.73	270.32	270.40	136.29	245.53	354.01
TOTAL MAGNET COST PER PUPIL:	$ 234.82	323.45	450.09	173.07	304.98	470.99

Figure 7. ELEMENTARY MAGNET SCHOOL PROGRAM COSTS ACCORDING TO LOCAL AND FEDERAL GRANT FUNDING SOURCES.

The 1986-87 magnet grant proposal did not request funds for the elementary programs to continue except for some partial partnerships with the secondary programs. Therefore, without federal funds and in the face of significant local revenue shortfalls, the cost efficiency of these programs must be considered when making decisions about whether or not to continue local funding.

With the new equipment and materials purchased with grant funds available for 1986-87, the programs should be able to function sufficiently well with reduced funds. Without transportation, however, the programs would be able to offer an enriched curriculum only to the students assigned to the school or to those who provided their own transportation.

HOW WAS THE FOREIGN LANGUAGE PROGRAM IMPLEMENTED?

Foreign language instruction in French, German, Latin, and Spanish was offered at Murchison as a way of providing a language-cultural center not available at other Austin junior high schools. Language instructional materials, including computers and video equipment were to be available to the teachers and students.

The foreign language magnet equipment was not received until the end of the school year or during the summer. Computer and video equipment was not installed in time for use during 1985-86; however, a variety of new supplemental instructional materials purchased with grant and local funds were available on time.

WHO WAS SERVED?

Murchison attracted many more transfer requests than were accepted. The restrictions imposed by the District's transfer policy on eligibility left few students qualified to transfer to Murchison. To qualify, the student must have been eligible under the stipulations of the transfer policy. In addition, the language of choice must not have been available at the home school.

Nine students, five females and four males, received approval for magnet transfers to Murchison during 1985-86, which included two Blacks, three Hispanics, and four Anglo/Other students. While these nine were the only students from outside the Murchison attendance area, many more students in the foreign language classes received services with the magnet instructional methods and materials. The following figure shows the actual enrollment in the eight foreign language classes each semester of the one-year courses.

COURSE	GRADE	1ST SEM	2ND SEM	COURSE	GRADE	1ST SEM	2ND SEM
French	(Gr 7)	29	26	Latin	(Gr 7)	7	7
French	(Gr 8)	8	8	Latin	(Gr 8)	5	5
German	(Gr 7)	16	16	Spanish	(Gr 7)	52	94
German	(Gr 8)	6	5	Spanish	(Gr 8)	39	21
TOTAL BY SEMESTER:						162	182

Figure 8. FOREIGN LANGUAGE CLASS ENROLLMENT, 1ST AND 2ND SEMESTERS, 1985-86.

Figure 9 below presents the ethnic, sex, and low-income characteristics of students who were considered to be magnet students, based on the average number of students enrolled in foreign language classes.

ETHNICITY			SEX		PERCENT
BLACK	HISPANIC	OTHER	MALE	FEMALE	LOW-INCOME
12	56	103	73	98	53
7%	33%	60%	43%	57%	31%

Figure 9. FOREIGN LANGUAGE MAGNET STUDENT CHARACTERISTICS

WHAT WAS THE COST PER PUPIL FOR THE FOREIGN LANGUAGE PROGRAM?

The capital outlay allocation was separated out of both the local and federal magnet funds for figuring per-pupil costs. The capital outlay amounts accounted for 68% of the federal funds and none of the local funds. The one-year depreciation value of capital outlay assets was calculated based on a five year useful life expectancy. One-fifth of the capital outlay allocation was added back into all other funds for the "total allocation" for each funding source. The cost-per-pupil represents the amount allocated for magnet students, based on the average number served throughout the year. The costs associated with the local magnet fund allocation represent expenses over and above the per pupil costs incurred by the District for regular instruction. Because only one transfer student requested transportation, the Office of Student Transportation considered the cost negligible and did not calculate the cost for magnet transportation.

SOURCE	ALLOCATION	STUDENTS SERVED	COST PER MAGNET PUPIL
Local	$22,000	172	$127.91
Federal	$31,865	172	$ 84.49
TOTAL	$53,865	172	$212.40

Figure 10. FOREIGN LANGUAGE MAGNET PER-PUPIL COST BASED ON BUDGET ALLOCATIONS.

Because the capital outlay portion of the federal budget was so large ($21,665), the adjusted budget on which the cost-per-magnet-pupil was based was actually $14,533 after depreciation was calculated. Therefore, the cost-per-pupil is less than what a simple division procedure would yield.

The program was actually more expensive than these figures reveal. Some of the language classes were quite small. Classes with smaller pupil-teacher ratios are more expensive on a per-pupil basis than full-capacity classes. Therefore, there were some hidden costs that increased the per-pupil cost for the program which were not calculated.

HOW WAS THE SCIENCE ACADEMY MAGNET PROGRAM IMPLEMENTED?

Program objectives of the Science Academy included: 1) to serve as a District and national implementation and dissemination model for exemplary instructional practices in science, mathematics, and computer science, and 2) to coordinate the development of a K-12 District science curriculum.

In 1985-86, the first year of implementation, 115 ninth- and 41 tenth-grade students and a few eleventh graders were enrolled. Eventually, the program will expand to include approximately 200 students in each of four grade levels. Students admitted to the Science Academy enrolled in an extra course offered during a "zero hour" period (before the official start of the school day). These courses were usually mathematics or science taught by a Science Academy teacher. Students also had additional mathematics, science, or computer classes with the Science Academy faculty during the day. Students were integrated into the entire LBJ student body for their remaining academic and elective courses.

WHO WAS SERVED?

Admission to the Science Academy was determined by a student's satisfactory performance on a battery of admission criteria, including standardized test scores, teacher recommendations, expression of interest, and an interview with a Science Academy staff member. Because any student could obtain a transfer to LBJ in an effort to increase enrollment, once a student was selected a transfer request was approved regardless of eligibility under the stipulations of the District's transfer policy.

A total of 282 students applied to the Science Academy, of which 216 (78%) were accepted, and 193 (68%) enrolled. On the following page, Figure 11 shows the proportion of applicants who enrolled, cancelled their application before or after the selection decision was made, and those who were rejected. Figure 12 shows the proportion of enrolled students who dropped out for various reasons.

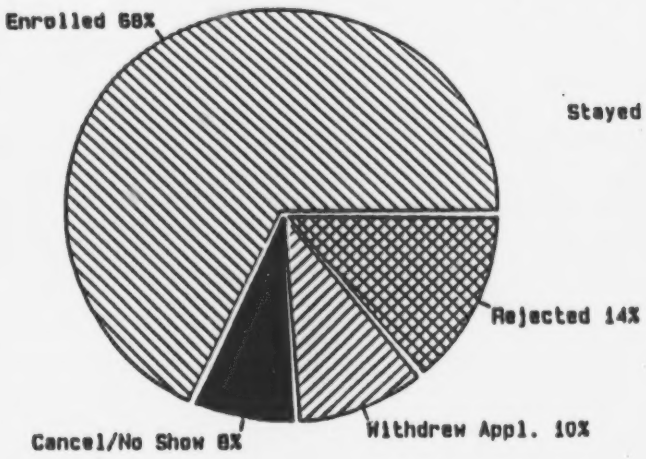


Figure 11. SCIENCE ACADEMY APPLICANTS, 1985-86.

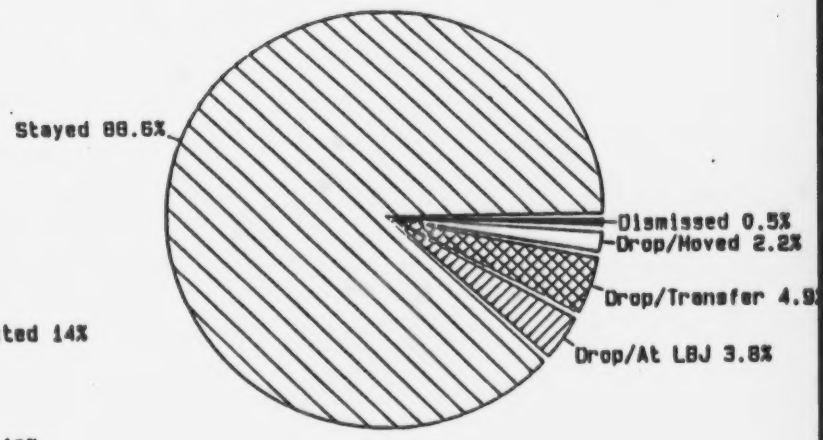


Figure 12. ENROLLMENT STATUS BY END OF YEAR.

Figure 13 below summarizes the ethnic, sex, and low-income status of the students who were still enrolled as of April, when the last count was taken.

ETHNICITY			SEX		PERCENT
BLACK	HISPANIC	OTHER	MALE	FEMALE	LOW-INCOME
33	12	123	122	46	11
20%	7%	73%	73%	27%	7%

Figure 13. CHARACTERISTICS OF SCIENCE ACADEMY STUDENTS.

HOW DID SCIENCE ACADEMY STUDENTS COMPARE TO OTHER STUDENTS DISTRICTWIDE IN TERMS OF ACHIEVEMENT?

UPON ENTERING?

The criteria used to select applicants for the Science Academy required that their standardized test percentile scores in mathematics and reading should sum to at least 140, and no subtest total percentile score should be below the 50th percentile. In general, the Science Academy applicants scored well above students districtwide on all subtests of the ITBS or TAP. The figures on the next page show the 1984-85 and 1985-86 median grade equivalent and percentile scores for eighth- and ninth-grade applicants who were accepted compared to students districtwide by ethnicity.

	SCIENCE ACADEMY ENROLLEES		DISTRICTWIDE	
	GRADE EQUIV.	PERCENTILE	GRADE EQUIV.	PERCENTILE
READING				
Black	10.25	78	7.67	33
Hispanic	10.35	80	7.77	36
Anglo	11.40	93	9.84	71
TOTAL	11.20	91	8.89	54
MATHEMATICS:				
Black	9.95	77	7.78	32
Hispanic	10.15	81	8.12	39
Anglo	10.80	92	9.52	69
TOTAL	10.60	88	8.82	54

Science Academy: Black=16, Hispanic=10, Anglo=111

Figure 14. 1985 ITBS MEDIAN GRADE EQUIVALENT AND PERCENTILE SCORES FOR STUDENTS DISTRICTWIDE AND SCIENCE ACADEMY ENROLLEES IN THE NINTH-GRADE IN 1985-86. There is no science subtest on the ITBS for which to report previous levels of achievement.

	SCIENCE ACADEMY ENROLLEES		DISTRICTWIDE	
	GRADE EQUIV.	PERCENTILE	GRADE EQUIV.	PERCENTILE
READING:				
Black	13.20	76	8.07	29
Hispanic	*	*	8.62	36
Anglo	16.20	91	12.26	70
TOTAL	15.90	90	10.23	54
MATHEMATICS:				
Black	14.40	83	7.95	25
Hispanic	*	*	8.59	32
Anglo	16.20	92	12.52	72
TOTAL	14.90	86	10.55	55
SCIENCE:				
Black	13.20	77	7.64	26
Hispanic	*	*	8.28	33
Anglo	16.10	95	11.98	69
TOTAL	15.30	90	10.14	53

Science Academy: Black=15, Hispanic= 5, Anglo=30

Figure 15. 1985 TAP MEDIAN GRADE EQUIVALENT AND PERCENTILE SCORES FOR STUDENTS DISTRICTWIDE AND SCIENCE ACADEMY ENROLLEES IN THE TENTH-GRADE IN 1985-86. There were too few Hispanic tenth-grade Science Academy students to report reliable results.

At the time applications were submitted, eighth-grade students accepted into the Science Academy:

- Scored an average of 37 percentile points above the District median percentiles for all students in reading on the ITBS (91st percentile versus 54th).
- Scored an average of 34 percentile points above the District ITBS median percentile in mathematics (88th versus the 54th).

Ninth-grade applicants:

- Scored an average of 36 percentile points higher than the District TAP median percentile score in reading (90th versus the 54th).
- Scored an average of 31 percentile points higher than the District TAP median percentile score in mathematics (86th versus the 55th).

BY END OF YEAR?

At the end of the year, regression analyses known as ROSE, Report On School Effectiveness, were done on the ninth- and tenth-grade TAP mathematics and science grade equivalent scores in order to compare the achievement of Science Academy students to similar, high-achieving students districtwide. Several characteristics were taken into consideration for finding similar, high-achieving students, such as previous achievement level, sex, ethnicity, low-income status, and desegregation status.

Because the ITBS does not have a science subtest, total battery grade equivalents were used as pretest scores for comparing with the ninth-grade TAP science score. Tenth-grade TAP scores were compared with the students' 1985 TAP scores. Figures 16 and 17 graphically represent how the Science Academy students achieved in science and mathematics compared to the performance of students with similar characteristics who were not in the program.

The following graphs show that the Science Academy students made large gains during the year. In addition, they made slightly larger gains than their high-achieving counterparts districtwide. It should be noted that the tenth-grade science gains for the Science Academy students are not significantly larger than the gains for the similar, high-achieving students. The Science Academy administration proposed that the tenth-grade Science Academy students did not have sufficient opportunity to demonstrate mastery in the science content areas they studied during the year (primarily chemistry and physics). Because of a change in the science course sequence at the ninth- and tenth-grades that took effect in 1985-86, some Science Academy students had biology in 1984-85 and some have not had biology at all. (This effect is unlikely to recur.) Only 32% (1st sem.) and 20% (2nd sem.) of the tenth-grade Science Academy

science enrollments were in biology during 1985-86. By comparison, 58% of tenth-grade science enrollments districtwide were in biology during 1985-86, and very few had chemistry or physics. However, the TAP science subtest is heavily loaded on biology items (37% of all items) and has very few on chemistry (3%) or physics (3%) items. The Science Academy director suggested that administering a higher level of the science TAP may help remedy this curriculum-test mismatch, as the higher levels have more chemistry and physics items than the lower levels.

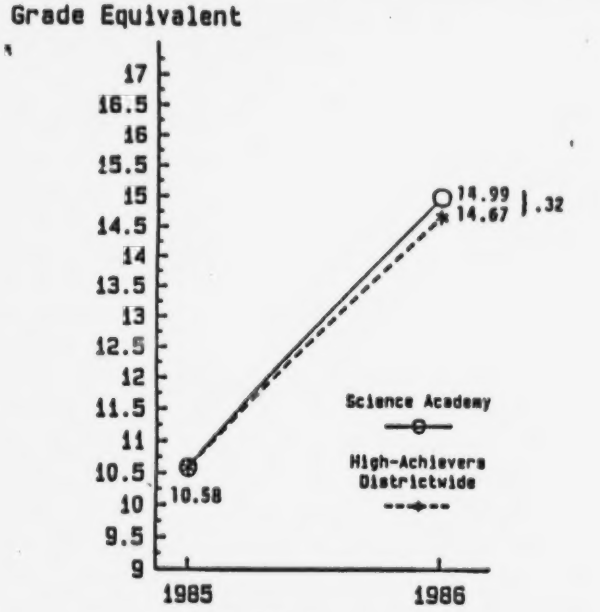


Figure 16a.
Ninth-Grade Mathematics Achievement

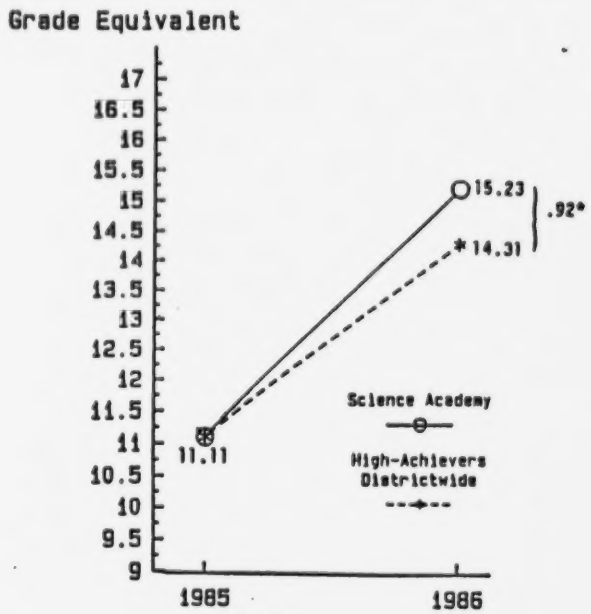


Figure 16b.
Ninth-Grade Science Achievement
*Statistically Significant difference

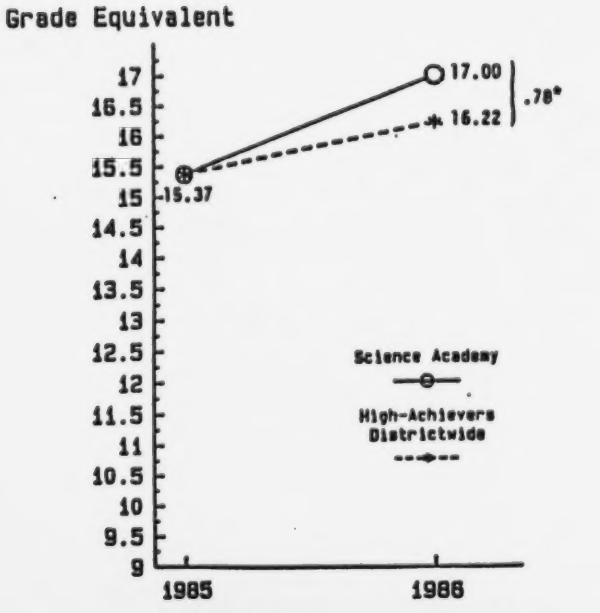


Figure 17a.
Tenth-Grade Mathematics Achievement
*Statistically significant difference

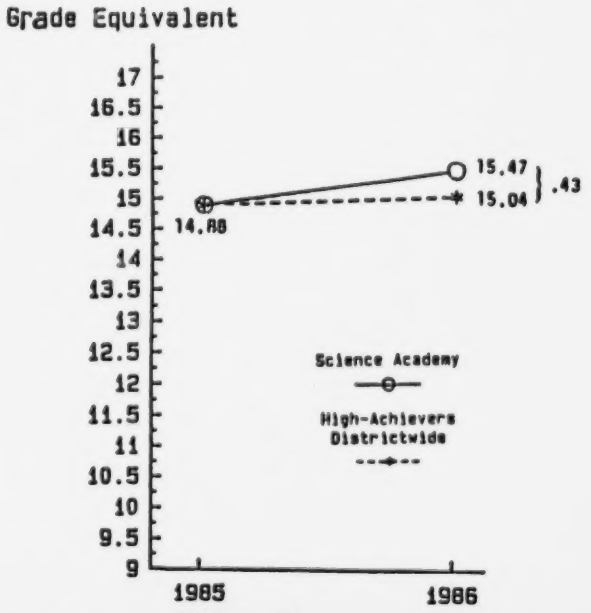


Figure 17b.
Tenth-Grade Science Achievement

Attachment 1 provides additional achievement information about the students who remained enrolled in the Science Academy throughout the 1985-86 academic year.

WHAT WAS THE COST PER PUPIL AT THE SCIENCE ACADEMY?

Because the capital outlay portion of the total allocation was so large, straight-line depreciation was calculated based on a five-year life expectancy of capital outlay assets. Furthermore, the costs had to be represented as being within a range, because teachers funded by the magnet program also provided services to regular LBJ students. Two methods were used to calculate the proportion of teachers' salaries which were exclusively for the Science Academy. In the first method (I), the proportion was based on the ratio of Science Academy classes to total classes for each teacher. The second method (II), was based on the four teachers' salaries that could be considered as "add-on" costs to the District because of the program. The salaries of five of the nine teachers were previously paid out of local funds but were assumed by the magnet program. In both methods, the salaries for two administrators and a secretary were considered to be "add-on" costs.

Because Science Academy students arrived early for a zero-hour period, it was necessary for the District to provide transportation for most of the students. When considering the following figures, it should be remembered that the local magnet costs represent expenses over and above the cost normally expended by AISD per student.

SOURCE	ADJUSTED ALLOCATION	STUDENTS SERVED	MAGNET COST PER PUPIL
LOCAL (I)	$348,275	174	$2,277.44
(II)	$270,100	174	$1,828.16
FEDERAL	$109,151	174	$ 627.30
TOTAL (I)	$457,426	174	$2,904.74
(II)	$379,251	174	$2,455.46
+TRANS.	$228,514	114	$2,004.51

Figure 18. SCIENCE ACADEMY PER-PUPIL COST BASED ON BUDGET ALLOCATIONS. Note: The cost to AISD is to be interpreted as lying within a range between the method (I) and (II) figures.

The cost to the District is projected to decrease as more students are admitted, because several courses had enrollments below the preferred 20:1 pupil-teacher ratio. Unfortunately, the value of the contributions the Science Academy or any magnet program makes to the District cannot be calculated as a benefit of incurring the extra cost of these programs. A few areas in which the Science Academy has already had an effect on AISD

include: new and revised curriculum units, outstanding teachers being attracted to AISD (including to other campuses), new scientific equipment, staff development for District teachers, and national recognition as an exemplary program.

ATTITUDES TOWARD THE SCIENCE ACADEMY

A 28-item survey was distributed to Science Academy students in April 1986, and 143 (86%) were completed and returned. No make-ups were offered. The results of the student survey indicated:

- More than half of the students felt motivated either by being with students with similar interests or just by being in the Science Academy.
- Most of the students (80%) plan to go to college and are considering a career in a science, mathematics, or technology field.
- Students who thought that the courses were difficult also tended to think that the teachers expected too much from the students. Students with a high grade point average tended to think the courses were easy.
- **Eighty-six percent reported that they would encourage other interested students to apply.**
- Students felt less prepared in study skills than in subject areas. Only 25% felt better than adequately prepared, and 30% felt poorly or not at all prepared in study skills, compared to fewer than 20% in all other academic areas.

Students were also asked to respond to open-ended questions about what they liked and disliked about the Science Academy. While academic topics represented over half of the positive comments, academics also received the largest portion (36%) of unfavorable comments. Students also focused on teachers and social aspects of the program in their comments about what they disliked (24% and 23% of the comments, respectively).

ADMINISTRATOR AND TEACHER ATTITUDES

Questions about the magnet programs were sent to administrators and teachers at the magnet campuses as part of an annual survey conducted by the Office of Research and Evaluation. Twelve administrators and seventy-one teachers at magnet campuses responded. In addition, several secondary mathematics and science teachers were also surveyed. In general, the results indicated the following:

- Ninety-two percent of the administrators and 80% of the teachers thought that students' interests were being satisfied by the magnet curriculum.
- Half of the administrators and teachers thought that the programs offered teachers greater flexibility in teaching the curriculum.
- More than half of the administrators (67%) and teachers (52%) held the opinion that the programs created extra work for teachers.
- Because of the magnet programs, 67% of the administrators, 70% of the elementary teachers, and all the secondary teachers reported that their motivation had increased.

DID THE PROGRAMS MEET THEIR OBJECTIVES IN CURRICULAR AND INSTRUCTIONAL ACTIVITIES?

The magnet school grant also provided funds to pay teachers stipends for participating in staff development or for curriculum writing and planning. Each campus submitted planning sheets outlining general activities in the areas of curriculum and staff training that would best meet their unique needs. Information about the activities that occurred at each campus was obtained from purchase requisitions that were submitted for payment of teacher stipends and from the administrator of each program.

The foreign language program failed to meet its staff development objectives because the VCR and computer equipment were not available on time for training use. Also, because it is unknown whether the program will exist next year (it is highly probable that it will not), training was not done because many of the language teachers had submitted requests to be transferred to another school. The conclusion was that staff development would no longer be a wise use of the money given the uncertain situation of the program. Instead, the money was used to purchase additional instructional materials.

Figure 19 on the following page presents a summary of each elementary campus' involvement in curricular activities and staff development. (The Science Academy activities in curriculum and instruction are presented in a following section which addresses the impact of the program on the District's science curriculum.) Under each heading, the numbers represent the total amount of time, if known, devoted to that activity. The evaluation of the status of the objectives (in the last column) was made by comparing the stated objectives to quantitative and qualitative information gathered from documents and interviews.

CAMPUS	CURRICULUM	STAFF DEVELOPMENT CONFERENCES	STAFF DEVELOPMENT INSERVICE	OBJECTIVES MET?
BROOKE	9 Field Trips, 817 Part-Time Teacher Hours	25 Days	--	Partially Met
BRYKER WOODS	690 Hours for Writing/Planning	56 Days	280 Hours	Yes
GULLETT	11 Modules Written	72 Days	--	Yes
HIGHLAND PARK	593 Hours Writing	--	859 Hours	Yes
ORTEGA	112 Hours Writing	43 Days	112 Hours	Exceeded
SIMS	3 Field Trips	12 Days	442 Hours	Exceeded
MURCHISON	none	none	none	Did Not Meet
SCIENCE ACADEMY	Curriculum skills training/writing; Total unknown	4 staff; Days unknown	2,000 Hours approx.	Exceeded

Figure 19. SUMMARY OF CURRICULAR AND STAFF DEVELOPMENT ACTIVITIES TOWARD MEETING PROGRAM OBJECTIVES

HOW HAVE THE MAGNET PROGRAMS IMPACTED THE DISTRICT?

In Terms of Enrollment and Ethnicity?

The enrollment by ethnicity was examined at each campus over a seven-year period. Since AISD implemented its desegregation plan in 1980-81, enrollment at seven of the eight campuses had been declining. Trends generally began to reverse with the introduction of magnet programs. The enrollment data indicated the following.

- All six elementary campuses increased in enrollment during either the first or second year of the magnet programs.
- In general, the enrollment at the six elementary schools has stabilized over the last three years (83-84 through 85-86). The magnet schools may have contributed to this, but there may have been other factors involved as well.

- LBJ showed its first increase in enrollment (+14%) since desegregation with the implementation of the Science Academy.

- Because Murchison admitted only nine magnet transfer students, there were too few to affect enrollment or ethnic balance.

- After desegregation impacted the schools, ethnic distributions remained relatively stable. Attachment 2 shows the percent minority enrollment at the schools for the past seven years. The reasons for the slight fluctuations may be the result of several influences, one of which might be the ethnicity of the magnet transfer students.

While conclusive statements about the impact of magnet schools on enrollment cannot be made because other District programs and policies affect a school, it does appear that the magnet programs were impacting the schools in a positive way. Attachment 3 shows the enrollment at each magnet campus over the seven year period from 1979-80 to 1985-86.

In Terms of Transfers?

- As the magnet schools have gained in popularity, the number of magnet transfers has increased. The largest increases occurred between the first and second years of the programs.

- A total of 765 elementary magnet transfers have been granted since the programs were first implemented.

- On a per school basis, transfers from overcrowded south Austin schools have been granted at a higher rate than from other schools, which is consistent with the purpose of the magnet schools. The 16 south Austin elementary schools (south of the Colorado River) have contributed 44% of the total magnet transfers, or an average of 21 per school compared to an average of nine for all remaining elementary campuses.

- Elementary magnet transfer students comprised from 4% to 22% of a school's total enrollment, with the average at 11.5%.

- Science Academy students represented nearly 15% of the total enrollment at LBJ; the magnet transfer students alone accounted for 10%. Almost 73% of all Science Academy students transferred from other schools.

In Terms of Enrollment in High School Honors Courses?

Enrollment in honors courses at the other high schools was examined to determine if the Science Academy impacted the schools by attracting transfer students to LBJ. The number of students taking one or more honors courses and the total enrollment for all honors courses were obtained for each campus. Assuming, then, that the Science Academy students were at their home school, enrollment estimates were calculated. A course was considered impacted if more sections would have been offered or if the course was not offered (but would have been) with the presence of the transfer students.

In general, the findings indicated no significant negative impact on the other high schools, with the exception of Johnston High School. Rather, the Science Academy had a positive impact on LBJ by increasing enrollment in honors courses. The following results were found:

- The number of students taking one or more honors courses at LBJ increased by 55% because of magnet transfers, while the average loss at the other schools was only 3.2%. At Johnston, the number decreased by 5.8%.

- Total enrollment in all honors courses at LBJ increased just over 70%, while the other schools experienced an average decrease of 4.7%. Enrollment at Johnston decreased 9.3%.

- All Science Academy students were enrolled in honors courses. Academy students accounted for 54% of all LBJ students in honors courses.

In Terms of Coordinating a K-12 Science Curriculum?

A teacher planner was funded by the magnet grant to catalog the elementary science magnet curriculum offered at each science magnet program. The objective of coordinating and articulating the curriculum across the grade levels and ultimately throughout the District began via these activities. The documentation of the curriculum was useful to the planning of the Aim High gifted and talented science program, which will be piloted in 1986-87.

While initial efforts have been made toward achieving the objective of a coordinated science curriculum, progress from the elementary levels was hampered by insufficient time and resources. There was also insufficient interest generated among the elementary program directors to have a coordinated curriculum to motivate them to devote time to the effort. Hence, much work is yet to be done.

Coordination efforts initiated by or in association with the Science Academy were successful in contributing to the overall objectives and in surpassing their own program objectives. A summary of major activities and contributions follows:

- The Science Academy director worked with the Kealing principal for planning and preparing the scope and sequence of the junior high science magnet curriculum. Kealing teachers were paid stipends for summer curriculum writing.
- Science Academy teachers conducted staff development sessions for Kealing teachers and for the Region XIII Service Center.
- As a result of workshops, other AISD teachers have requested copies of the science curriculum. Other districts have also requested copies.

HOW DID AISD'S PROGRAMS COMPARE TO OTHER PROGRAMS NATIONWIDE?

The Department of Education distributed $75,030,000 in 1985-86 under the Magnet Schools Assistance Program to 44 districts nationwide. General information about other districts' programs was available from the Department of Education and was distributed at a magnet program conference held in Washington, D.C. Descriptive statistics were calculated from the information reported for each district to compare AISD's grant program with the programs of other grant recipients. The information was summarized as follows:

- The average grant amount awarded was $1,705,227. AISD's award of $963,950 ranked 24th in terms of the dollar amount (ranked from high to low).
- Of the districts reporting an estimated number of students served, the average was 4,522, and the median was 3,000. AISD had originally estimated that 3,800 students would be served but actually served 1,958.
- The average number of schools served was six elementary and three secondary. The medians were three and two respectively.
- AISD's programs addressed seven different curriculum areas districtwide, compared to an average of 4.79 areas nationwide. Science/technology programs were the most frequently offered.
- The per pupil allocation, based on the grant amount divided by the estimated number of students served, averaged $645 across the nation. Austin's estimated per pupil allocation was $253.67, more than half a standard deviation below the mean.

85.42

Even with a smaller than average grant award, AISD was very competitive compared to the other 43 districts that received grants in the number of schools and students served and offered a better than average variety of curriculum areas, and AISD funded its magnet programs at an estimated per pupil cost which was below the estimated national average.

Bibliography

Gaines, M. L. (1986). Magnet Schools Assistance Program: 1985-86 Technical Report (ORE Pub. No. 85.41). Austin, TX: Office of Research and Evaluation, Austin Independent School District.

GRADE 9	SCIENCE ACADEMY Grade Equivalent 85	86	diff.	Percentile 85	86	DISTRICTWIDE Grade Equivalent 85	86	diff.	Percentile 85	86
READING:										
Black	10.10	14.40	+4.30	76	83	7.67	8.21	+ .54	33	31
Hispanic	10.50	13.20	+2.70	82	76	7.77	8.67	+ .90	36	37
Other	11.50	16.50	+5.00	93	92	9.84	12.25	+1.69	71	69
TOTAL	11.30	15.90	+4.60	91	90	8.47	10.16	+1.69	54	53
MATHEMATICS:										
Black	10.00	13.40	+3.40	78	77	7.67	8.27	+ .60	33	29
Hispanic	9.90	13.90	+4.00	76	80	7.77	8.86	+1.09	36	36
Other	10.90	16.40	+5.50	92	93	9.84	12.38	+1.63	71	71
TOTAL	10.70	16.00	+5.30	90	91	8.89	10.52	+1.63	54	55
SCIENCE:										
Black	--	14.30	--	--	84	--	7.86	--	--	29
Hispanic	--	14.05	--	--	83	--	8.50	--	--	35
Other	--	16.40	--	--	96	--	11.69	--	--	69
TOTAL	--	16.10	--	--	95	--	10.19	--	--	53

Science Academy: Black=15, Hispanic=9, Other=85

Attachment 1a: 1985 AND 1986 MEDIAN GRADE EQUIVALENT AND PERCENTILE SCORES FOR STUDENTS DISTRICTWIDE AND NINTH-GRADE SCIENCE ACADEMY STUDENTS WHO WERE ENROLLED THE ENTIRE YEAR.

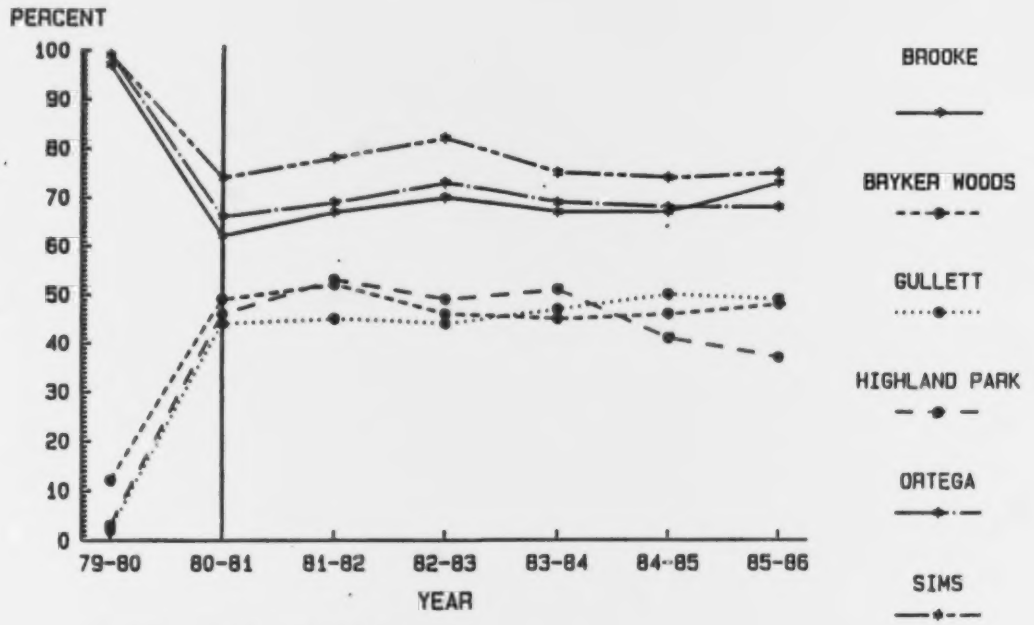
GRADE 10	SCIENCE ACADEMY Grade Equivalent 85	86	diff.	Percentile 85	86	DISTRICTWIDE Grade Equivalent 85	86	diff.	Percentile 85	86
READING:										
Black	15.20	14.80	- .40	87	78	8.07	9.81	+1.74	29	40
Hispanic	*	*	*	*	*	8.62	10.55	+1.93	36	47
Other	16.20	18.00	+1.80	91	92	12.26	14.18	+1.92	70	74
TOTAL	15.90	17.30	+1.40	90	90	10.23	12.65	+2.42	54	64
MATHEMATICS:										
Black	14.40	15.50	+1.10	83	82	7.95	9.80	+1.85	25	39
Hispanic	*	*	*	*	*	8.59	11.09	+2.50	32	50
Other	16.40	18.10	+1.70	93	95	12.52	14.19	+1.67	72	74
TOTAL	15.20	17.20	+2.00	88	91	10.29	12.64	+2.35	55	62
SCIENCE:										
Black	13.40	14.40	+1.00	78	77	7.64	9.81	+2.17	26	38
Hispanic	*	*	*	*	*	8.28	10.41	+2.13	33	45
Other	16.10	16.20	+ .10	95	89	11.98	13.67	+1.69	69	72
TOTAL	15.30	16.00	+ .70	90	88	10.14	12.28	+2.14	53	61

Science Academy: Black=13, Hispanic=< 5, Other=23

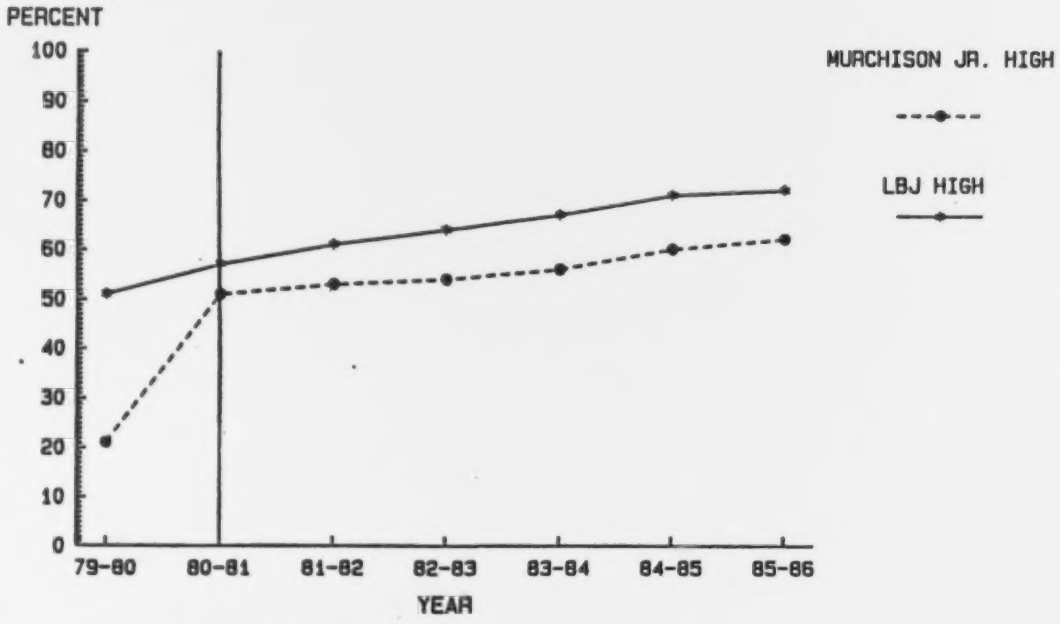
Attachment 1b: 1985 AND 1986 MEDIAN GRADE EQUIVALENT AND PERCENTILE SCORES FOR STUDENTS DISTRICTWIDE AND TENTH-GRADE SCIENCE ACADEMY STUDENTS WHO WERE ENROLLED THE ENTIRE YEAR.

Attachment 2

PERCENT MINORITY ENROLLMENT AT MAGNET CAMPUSES 1979-80 THROUGH 1985-86



MINORITY ENROLLMENT AT ELEMENTARY MAGNET CAMPUSES, 1979-80 TO 1985-86.



MINORITY ENROLLMENT AT SECONDARY MAGNET CAMPUSES, 1979-80 TO 1985-86.

30

1980-81 Desegregation Begins

Magnet Schools Assistance Program

Appendix A

MAGNET STUDENT CHARACTERISTICS

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Magnet Schools Assistance Program

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MAGNET STUDENT CHARACTERISTICS

Purpose

A primary objective of magnet school programs is to increase educational opportunities for traditionally underrepresented populations, e.g., minorities, females, and the disadvantaged. Information was collected in order to respond to the following evaluation question:

> **Evaluation Question D1-10, D2-6, D3-11.** What were the characteristics of students served by the magnet programs?

Appendix A summarizes the characteristics of the students served in the eight magnet programs during 1985-86 with respect to sex, ethnicity, and low-income status. For the three programs which were not campuswide, the characteristics of the magnet students will be compared to all the students at that campus.

Procedure

Data Collection

The magnet evaluator obtained the information from the following sources:

1. The School Characteristics file maintained by the Office of Research and Evaluation contained a copy of the Fall Survey of Pupils in Membership Report submitted to TEA in October, 1985, which provided the official sex and ethnicity counts and percentages for each campus in 1985-86.

2. The Chapter 1/Migrant programmer/analyst wrote a program to calculate the percentage of low-income students attending each of the eight magnet campuses as well as for the magnet school participants at Gullett, Murchison, and the Science Academy in order to compare them to the low-income status of the entire school and the District (see Attachment A-1).

Analyses

The number and percentage of students was calculated for ethnicity and sex based on the average daily membership for the first six weeks of school. The number and percentage of low-income status students in each school and for the magnet participants at the three non-campuswide

programs as well as for the District were based on the students still active on the District's Student Master file as of June 3, 1986, the last day of school.

The percent low-income at each school was based on the number of students eligible for the free or reduced-price lunch program compared to the total enrollment at the school. Eligibility was determined by factors such as family income and number of dependents. In order to be considered for eligibility, a student must submit an application or be a sibling of an eligible student.

Results

The number and percentage of students in each ethnic and gender category and their low-income status are presented in Figure A-1. For Gullett, Murchison, and LBJ, the information for the magnet students is presented separately for comparison with the entire campus.

Discussion

Compared to the districtwide ethnic distribution, the magnet campuses tended to have a very different distribution. Yet, when compared to previous years at the same campus, the ethnic distribution has slowly been moving toward parity with the District ratios. Appendix B goes into the changes that have occurred since desegregation in greater detail.

With respect to gender, the magnet schools served males and females in approximately the same percentages that existed districtwide. At the three non-campuswide programs, the distribution deviated from the District average. Both Gullett and the Science Academy served males at a higher rate than they appeared in the overall population, and Murchison served more females. These discrepancies probably reflect existing tendencies for males and females to be attracted to different fields of interest. While the magnet programs are intended to encourage females to participate in science and technology, it may take longer than one year to reverse the trends in the AISD. As of May 26, 143 acceptable applications to the Science Academy had been submitted, of which 58 (41%) were female. Hence, it does appear that encouraging females to pursue math and science is beginning to change the trend, at least at the Science Academy.

Three elementary campuses ranked above the District mean for percent low-income and three ranked below the mean. Both Murchison and LBJ ranked number one in percent low-income for junior and senior highs respectively.

By comparison, less than six percent of Gullett's magnet students were of low-income status. This was likely due to the fact that the magnet students were drawn primarily from south Austin schools, which tended to have a lower percentage of eligible students than among those assigned to Gullett. The Science Academy students who were eligible accounted for seven percent of the Science Academy enrollment and less than one percent of LBJ's total enrollment.

It should be noted that the percent low-income figures are different from the figures presented in AISD Needs Assessment for 1986-87, ORE Pub. No. 85.36, which were based on the number residing in the school's attendance area and not the number actually enrolled at the school. According to the Needs Assessment, many low-income students also tended to be low achievers. The fact that the Science Academy students tended to be high achievers may help to explain why so few were considered low-income. The stigma attached to low-income status probably prevented many eligible students from applying, and, therefore, the percent low-income at secondary campuses tended to be underestimated.

Reference

Christner, C. (1986) AISD Needs Assessment for 1986-87 (ORE Pub. No. 85.36). Austin, TX: Austin Independent School District, Office of Research and Evaluation.

MAGNET SCHOOL CHARACTERISTICS

SCHOOL	ETHNIC GROUP			GENDER		PERCENT
	BLACK	HISPANIC	OTHER	MALE	FEMALE	LOW-INCOME
BROOKE	13	228	91	189	161	188
	4%	69%	27%	54%	46%	54.7%
BRYKER WOODS	77	34	119	112	118	83
	33%	15%	52%	49%	51%	32.4%
GULLETT						
WHOLE SCHOOL	144	48	198	212	178	117
	37%	12%	51%	54%	46%	30.3%
MAGNET	12	7	123	81	61	8
(n=142)	8%	5%	87%	57%	43%	5.6%
HIGHLAND	7	136	246	201	188	116
PARK	2%	35%	63%	52%	48%	28.2%
ORTEGA	69	140	97	148	175	178
	22%	46%	32%	46%	54%	55.5%
SIMS	165	35	68	138	166	152
	62%	13%	25%	45%	55%	58.5%
ELEMENTARY	6,492	10,730	16,241	17,159	16,304	Mean:
DISTRICTWIDE	19%	32%	49%	51%	49%	42.7%
MURCHISON						
WHOLE SCHOOL	117	264	236	297	320	288
	19%	43%	38%	48%	52%	48.3%
MAGNET	12	56	103	73	98	53
(n=171)	7%	33%	60%	43%	57%	31.0%
JUNIOR HIGH	1,780	2,579	4,356	4,396	4,319	Mean:
DISTRICTWIDE	20%	30%	50%	50%	50%	30.6%
LBJ						
WHOLE SCHOOL	826	114	369	728	581	257
	63%	9%	28%	56%	44%	21.7%
MAGNET	33	12	123	122	46	11
(n=168)	20%	7%	73%	73%	27%	7%
SENIOR HIGH	3,039	4,010	9,533	8,430	8,152	Mean:
DISTRICTWIDE	18%	24%	58%	51%	49%	16.2%

Figure A-1. MAGNET SCHOOL STUDENT CHARACTERISTICS, 1985-86. NUMBER AND PERCENT BY ETHNICITY, SEX, AND LOW-INCOME STATUS, Elementary and Secondary campuses.

ATTACHMENT A-1

SAS PROGRAM CALCULATING PERCENTAGE OF LOW-INCOME STUDENTS
ATTENDING EACH OF THE EIGHT MAGNET CAMPUSES

```
1       5 m 5   L 5 G   VSE SAS 82.4        VSE 5.1 JOB EV3SAS                    7:41 WEDNESDAY, JUNE 4, 19

NOTE: THE JOB EV3SAS HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (5198600JI).

NOTE: CPUID   VERSION = FF  SERIAL = 013553  MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1           OPTION NONOTES;                                                    00000080
2            DATA STUD;                                                        00000090
3              INFILE STUMST VSAM;                                             00000100
4              INPUT              @1   ID     PD4.                            00000110
5                                 SEXCDE $  12                                00000120
6                                 GRADE  $  15-16                             00000130
7                                 ACODE  $  47-47                             00000140
8                                 RACE   $  48                                00000150
9                                 @ 128  LOC    PD2.                          00000160
10                                LISTAT $ 142-142;                           00000170
11               IF ACODE NOT = '1';                                          00000180
12               IF LOC EQ 010 OR LOC EQ 052 OR LOC EQ 117 OR LOC EQ 108 OR   00000190
13                  LOC EQ 110 OR LOC EQ 119 OR LOC EQ 126 OR LOC EQ 139;     00000200
14               GROUP='NOT ELIG';                                            00000210
15               IF LISTAT='1' OR LISTAT='2' OR LISTAT='3' THEN GROUP='ELIGIBLE'; 00000220
16               IF SEXCDE = '1' THEN SEX = 'MALE  ';                         00000230
17               IF SEXCDE = '3' THEN SEX = 'FEMALE';                         00000240
18               IF RACE = '1' THEN ETHNIC = 'AMER IND';                      00000250
19               IF RACE = '2' THEN ETHNIC = 'ORIENTAL';                      00000260
20               IF RACE = '3' THEN ETHNIC = 'BLACK   ';                      00000270
21               IF RACE = '4' THEN ETHNIC = 'HISPANIC';                      00000280
22               IF RACE = '5' THEN ETHNIC = 'ANGLO   ';                      00000290
23               DROP ACODE LISTAT SEXCDE RACE;                               00000300
24                                                                            00000310
25                                                                            00000320
25           DATA NAMES;                                                      00000320
26             INPUT LOC 43-45  SCHOOL $ 46-68;                               00000330
27             CARDS;                                                         00000340
320       ;                                                                   00000360
321                                                                           00000370
322          PROC SORT DATA=STUD;                                             00000380
323            BY LOC;                                                        00000390
324                                                                           00000400
325                                                                           00000410
WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
325          DATA MARGIE;                                                     00000410
326            MERGE STUD (IN=UNSTUD) NAMES;                                  00000420
327              BY LOC;                                                      00000430
328            IF UNSTUD;                                                     00000440
329                                                                           00000450
330                                                                           00000460
330          PROC SORT DATA=MARGIE;                                           00000460
331             BY SCHOOL;                                                    00000470
332                                                                           00000480
333                                                                           00000490
WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
```

```
2      S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EVSSAS                    7:41 WEDNESDAY, JUNE 4, 19

334            TABLES GRADE*GROUP;                                              00000500
335              BY SCHOOL;                                                     00000510
336         TITLE1 PROG: SA-MG011-01-01;                                        00000520
337         TITLE2 AUSTIN INDEPENDENT SCHOOL DISTRICT;                          00000530
338         TITLE3 DEPARTMENT OF MANAGEMENT INFORMATION;                        00000540
339         TITLE4 OFFICE OF RESEARCH AND EVALUATION;                           00000550
340         TITLE5 FREQUENCY OF ELIGIBLE/NOT ELIGIBLE RECIPIENTS OF FREE/REDUCED PRI00000560
341         CE LUNCH 1985-86;                                                   00000570
342                                                                             00000580
343                                                                             00000590
344            PROC FREQ DATA=MARGIE;                                           00000600
345              TABLES ETHNIC*SEX;                                             00000610
346                BY SCHOOL;                                                   00000620
347         TITLE6 FREQUENCY OF SEX VS. ETHNICITY;                              00000630
348                                                                             00000640
349            DATA MURCH;                                                      00000650
350              INPUT ID   1-7;                                                00000660
351              CARDS;                                                         00000670
352         ;                                                                   00000680
353                                                                             00000690
354            PROC SORT DATA=MARGIE;                                           00000700
355              BY ID;                                                         00000710
356                                                                             00000720
357                                                                             00000730
WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
358            PROC SORT DATA=MURCH;                                            00000730
359              BY ID;                                                         00000740
360                                                                             00000750
361                                                                             00000760
WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
361            DATA SET1;                                                       00000760
362              MERGE MARGIE MURCH (IN=ONMURCH);                               00000770
363                BY ID;                                                       00000780
364              IF ONMURCH;                                                    00000790
365                                                                             00000800
366                                                                             00000810
366            PROC FREQ DATA=SET1;                                             00000810
367              TABLES GROUP*GRADE;                                            00000820
368              TABLES ETHNIC*SEX;                                             00000830
369              TITLE6 FREQUENCIES OF STUDENTS AT MURCHISON ON SA-MG011-02-01;  00000840
370                                                                             00000850
371                                                                             00000860
371            PROC DELETE DATA=SET1;                                           00000860
372                                                                             00000870
372            PROC DELETE DATA=MURCH;                                          00000870
373                                                                             00000880
374                                                                             00000890
374            DATA BULL;                                                       00000870
375              INPUT ID   1-7;                                                00000900
376              CARDS;                                                         00000910
702         ;                                                                   00000930
703                                                                             00000940
704            PROC SORT DATA=BULL;                                             00000950
```

```
3       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV3SAS                    7:41 WEDNESDAY, JUNE 4, 198

705             BY ID;                                                          00000960
706                                                                             00000970
707                                                                             00000980
WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
707             DATA SET2;                                                      00000980
708               MERGE MARGIE GULL (IN=GULL);                                  00000990
709                 BY ID;                                                      00001000
710               IF GULL;                                                      00001010
711                                                                             00001020
712                                                                             00001030
712             PROC FREQ DATA=SET2;                                            00001040
713               TABLES GROUP*GRADE;                                           00001050
714               TABLES ETHNIC*SEX;                                            00001060
715               TITLE2 FREQUENCIES OF STUDENTS AT GULLETT ON SA-MG011-03-01;  00001070
716                                                                             00001080
717                                                                             00001090
717             PROC DELETE DATA=GULL;                                          00001100
718                                                                             00001110
718             PROC DELETE DATA=SET2;                                          00001120
719                                                                             00001130
720                                                                             00001140
720             DATA LBJ;                                                       00001150
721               INPUT ID      1-7;                                            00001160
722               CARDS;                                                        00001170
908       ;                                                                     00001180
909                                                                             00001190
910             PROC SORT DATA=LBJ;                                             00001200
911               BY ID;                                                        00001210
912                                                                             00001220
913                                                                             00001230
WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
913             DATA SET3;                                                      00001200
914               MERGE MARGIE LBJ (IN=LBJ);                                    00001210
915                 BY ID;                                                      00001220
916               IF LBJ;                                                       00001230
917                                                                             00001240
918                                                                             00001250
918             PROC DELETE DATA=MARGIE;                                        00001250
919                                                                             00001260
919             PROC DELETE DATA=LBJ;                                           00001270
920                                                                             00001280
921                                                                             00001290
921             PROC FREQ DATA=SET3;                                            00001300
922                TABLES GROUP*GRADE;                                          00001310
923                TABLES ETHNIC*SEX;                                           00001320
924                TITLE2 FREQUENCIES OF STUDENTS AT L.B.J. ON SA-MG03B-01-02;  00001330
925                                                                             00001340
926       PROC DELETE DATA=ST30;                                                00001350
```

Magnet Schools Assistance Program

Appendix B

ENROLLMENT, ETHNICITY, TRANSFERS
1979-1986

TABLE OF CONTENTS

Magnet Schools Assistance Program

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ENROLLMENT, ETHNICITY, TRANSFERS
1979-1986

Purpose

The purpose of Appendix B is to examine the information relevant to the objective of the magnet school programs, which is to contribute to the District's desegregation plan by providing opportunities for voluntary transfers to improve the ethnic balance and overall enrollment at participating campuses. Enrollment, ethnicity, and transfer information was collected in response to the following decision and evaluation questions:

Decision Question D1, D2, D3. Should the magnet programs be continued as they are, modified, expanded, or discontinued?

Evaluation Question D-11, D2-7. How many students transferred to the magnet program? From which schools did they come?

Evaluation Question D3-12. Who transferred to the Science Academy? From which schools did they come?

Evaluation Question D1-12, D2-8. How did the magnet programs impact the enrollment and ethnic distribution at participating campuses?

Evaluation Question D3-13. What impact did the Science Academy have on the enrollment and ethnicity at LBJ High School?

The answers to these questions should reveal whether or how the magnet schools are attracting and holding students to achieve the objectives of increased enrollment and ethnic distributions that reflect the district-wide distributions.

Procedure

Data Collection

The information regarding enrollment and ethnicity counts were readily available from data files kept by the Office of Research and Evaluation. The files accessed were the Average Daily Membership and Ethnicity Counts files. Student transfer information, including students' ethnicity, reason for and date of transfer, and sending and receiving schools was available from District computer files. Data Services was requested to

access the "Student Transfers To" and "Student Transfers From" computer files to provide the transfer information (see Attachment B-1). The enrollment and ethnicity counts are based on the average daily membership for the first six weeks of each school year from 1979-80 through 1985-86. These years will provide a longitudinal perspective on school characteristics beginning with the year just prior to the implementation of the District's court-ordered desegregation plan.

The six elementary, one junior high, and one senior high with magnet school programs in 1985-86 were selected for tracking over the seven year period.

Analysis

The enrollment, ethnicity, and transfer data were summarized by frequencies and percentages by ethnic group for each year. Trends evident in the data are summarized in the results section below.

Results

Enrollment and Ethnicity

Figure B-1 shows the total enrollment for each school for the seven year period. Enrollment by ethnicity and percentage of the total represented by each ethnic group are also shown. The percent change indicates the change in total enrollment over the previous year.

The data reveal the following:

Elementary:

- Four of the six magnet campuses experienced declines in enrollment during the first year of desegregation. Only two elementary schools showed small increases.
- In general, the enrollment at the six elementary schools has stabilized over the last three years, 1983-84 through 1985-86; whether or not this is due to the magnet programs or due to general District trends cannot be determined from the data.
- The average percentage of minority (Black and Hispanic) students at previously Anglo-dominant elementary campuses ranged from 46% to 48% for the six years since desegregation.
- The average percentage of minority students at previously minority-dominant elementary campuses ranged from 68% to 76% since desegregation.

- All six elementary schools showed an increase in enrollment during either the first or second year of the magnet program at those campuses, with four of the schools showing increases the first year. This may be accounted for in part by extensive publicity and recruitment efforts for the programs during the initial years.

Secondary:

- The enrollment at LBJ High School, which had been declining since desegregation began, experienced a sudden increase of 14% in 1985-86. However, enrollment is still 17% below the pre-desegregation level of 1979-80.

- While Hispanic student enrollment at LBJ has remained constant relative to total enrollment, Black student enrollment has increased and Anglo student enrollment decreased. In 1985-86, these trends began to slow, and the ethnic distribution remained unchanged over the previous year.

- Enrollment at Murchison declined by only one student in 1985-86, although in previous years enrollment had been unstable.

Transfers

Transfers to magnet school campuses for the purpose of participation in the magnet program (as opposed to any other reason) are granted in accordance with the stipulations of the AISD's Transfer and Assignment policy (227-901).

Elementary students who are not assigned to a specific school for purposes of desegregation or who attend a high-enrollment school may apply for a transfer, provided there is no negative impact on integration and space is available at the requested school.

Junior high school students wishing to attend Murchison for the foreign language magnet must meet these same eligibility requirements. In addition, they may transfer only if the language(s) they wish to study are not offered at their home school.

A transfer to LBJ High School will be approved for students residing outside the LBJ attendance area who are accepted for enrollment in the Science Academy of Austin.

Figure B-2 shows the number of magnet transfers received at each magnet campus from each school for the years 1982-83 through 1984-85. Although all students at five of the six elementary schools are considered magnet program participants, Figure B-2 reflects only transfers granted for the

purpose of attending the magnet program and excludes transfers for all other reasons. Figure B-3 presents other relevant information about magnet transfers in relation to all transfers and to campus enrollment.

The transfer data reveal the following:

Elementary:

- A total of 765 elementary magnet transfers have been granted since the programs were first implemented.
- The 16 South Austin schools (all campuses south of the Colorado River), where overcrowding is greatest, have contributed 335 transfer students, or 44% of the total number of magnet transfers. This equates to an average of 21 transfers from each of the 16 schools over the four years compared to an average of nine transfers for all remaining elementary campuses.
- In 1985-86, the proportion of total enrollment at the elementary magnet schools represented by magnet transfers ranged from a low of 4% at Brooke and Ortega to a high of 22% at Gullett. The mean percentage was 11.5%.
- In general, there has been an increase in magnet transfers at the elementary campuses each successive year. However, Bryker Woods experienced a 27% decrease in magnet transfers in 1985-86 over the previous year (compared to a 38% drop in total transfers), and Ortega had a 50% decline in magnet transfers (compared to a 21% drop in total transfers during the same period.
- In general, minority magnet transfers have varied in direct relationship to minority enrollment at the elementary campuses. However, at Highland Park, minority magnet transfers increased despite declining minority enrollment over the four years of the program at that campus.

Secondary:

- Only nine students transferred to the Murchison Foreign Language Magnet, which represented only 1% of the enrollment.
- 72.5% of the Science Academy Students were transfers from other high schools.
- As many students transferred out of LBJ as transferred in, although overall enrollment was up 14% over 1984-85. Without the Science Academy transfers, and with everything else remaining equal, enrollment would have increased by only 2%.

Discussion

This section will summarize the progress made by the magnet schools in meeting the objectives of 1) increasing enrollment at the participating campuses, and 2) moving toward ethnic distributions commensurate with districtwide distributions.

Magnet programs have been successful in attracting students to the elementary campuses, as shown by the increasing numbers and relative percentages each year since their implementation. In 1985-86, magnet transfer students composed a majority of all the transfers to the eight campuses, and transfer magnet students comprised as much as 22% of a school's enrollment. The elementary magnet campuses also have been successful in drawing students from the overcrowded south Austin schools in greater numbers than from all other schools, which is consistent with the intent of the magnet schools and the Transfer and Assignment policy of AISD.

The Science Academy attracted the majority of its students from other Austin High Schools and contributed to a 12% increase in enrollment over the 2% that would have occurred without the Science Academy.

Although the Murchison Junior High Foreign Language Magnet program was successful in attracting many potential transfer students, few were eligible to receive a transfer because of the stipulations for transferring to the foreign language program. However, an average of 170 students participated in the magnet program curriculum.

It cannot be concluded with certainty that the magnet programs were solely responsible for enrollment changes at the participating campuses, as other District programs and policies may also have influenced student enrollment; however, it appears that the magnet programs are impacting the enrollment at the schools as intended.

With respect to ethnic distributions, it is difficult to make conclusive statements about the impact of the magnet programs. Minor shifts in the ethnic composition of each campus may have been due more to changes in the ethnic composition of Austin than to the presence of a magnet program.

However, it is apparent that magnet schools with a predominant minority enrollment attracted more minority than anglo students. The minority students that transferred for reasons of attending an elementary magnet school in 1985-86 represented an average of 29% of all magnet transfers to minority-dominant schools, compared to an average of 19% at the magnet schools with a predominant Anglo enrollment. Overall, minorities represented 21% of all magnet transfer students in 1985-86.

Anglo students transferred out of minority-dominant schools at a higher rate than out of Anglo-dominant schools. Anglo students represented an average of nearly 49% of the transfers out of minority-dominant schools

in 1985-86 compared to an average of 41% of the transfers out of Anglo-dominant schools. These percentages represent 7% and 4% of the total enrollment at each type of school, respectively.

In general, it appears that AISD's magnet programs have had a greater impact on campus enrollments than on ethnic composition. For the magnet schools to achieve the objective of attracting Anglo students voluntarily to the minority-dominant schools, greater effort would need to be focused on attracting Anglos as well as retaining them.

While the magnet programs represent an attracting force at the schools, the extent of their impact should be interpreted cautiously, as other factors that influence enrollment and ethnic composition have remained unaccounted for here.

FIGURE B-1

ANNUAL CAMPUS ENROLLMENTS SINCE 1979-80,
THE YEAR PRIOR TO THE IMPLEMENTATION OF DESEGREGATION

MAGNET CAMPUS ENROLLMENT
LONGITUDINAL BY ETHNICITY

CAMPUS	BLACK	HISPANIC	ANGLO/OTHER	TOTAL	PERCENT CHANGE
BROOKE					
1979-80	10 (2%)	451 (95%)	14 (3%)	475	
1980-81	7 (2%)	257 (61%)	155 (37%)	419	-12%
1981-82	6 (2%)	243 (65%)	123 (33%)	372	-11%
1982-83	7 (2%)	250 (68%)	110 (30%)	367	- 1%
1983-84*	9 (3%)	215 (64%)	112 (33%)	336	- 8%
1984-85	14 (4%)	218 (63%)	113 (33%)	345	+ 3%
1985-86	13 (4%)	228 (69%)	91 (27%)	332	- 4%
BRYKER WOODS					
1979-80	9 (3%)	24 (9%)	247 (88%)	280	
1980-81	97 (41%)	19 (8%)	122 (51%)	238	-15%
1981-82	88 (42%)	20 (10%)	102 (48%)	210	-12%
1982-83*	83 (37%)	20 (9%)	122 (54%)	225	+ 7%
1983-84	80 (37%)	17 (8%)	119 (55%)	216	- 4%
1984-85	79 (29%)	46 (17%)	145 (54%)	270	+25%
1985-86	77 (33%)	34 (15%)	119 (52%)	230	-15%
GULLETT					
1979-80	2 (.5%)	5 (1%)	347 (98.5%)	354	
1980-81	144 (38%)	23 (6%)	216 (56%)	383	+ 8%
1981-82	135 (38%)	23 (7%)	192 (55%)	350	- 9%
1982-83*	134 (35%)	35 (9%)	216 (56%)	385	+10%
1983-84	130 (35%)	43 (12%)	194 (53%)	367	- 5%
1984-85	130 (34%)	62 (16%)	193 (50%)	385	+ 5%
1985-86	144 (37%)	48 (12%)	198 (51%)	390	+ 1%
HIGHLAND PARK					
1979-80	5 (1%)	13 (3%)	492 (96%)	510	
1980-81	4 (1%)	165 (45%)	197 (54%)	366	-28%
1981-82	3 (1%)	183 (52%)	163 (47%)	349	- 5%
1982-83*	11 (3%)	170 (46%)	192 (51%)	373	+ 7%
1983-84	12 (3%)	189 (48%)	196 (49%)	397	+ 6%
1984-85	7 (2%)	155 (39%)	238 (59%)	400	+ 1%
1985-86	7 (2%)	136 (35%)	246 (63%)	389	- 3%

*** Indicates first year of magnet program.**

Figure B-1. ANNUAL CAMPUS ENROLLMENTS SINCE 1979-80, THE YEAR PRIOR TO THE IMPLEMENTATION OF DESEGREGATION. (Page 1 of 2)

CAMPUS	BLACK	HISPANIC	ANGLO/OTHER	TOTAL	PERCENT CHANGE
ORTEGA					
1979-80	172 (54%)	144 (45%)	4 (1%)	320	
1980-81	98 (30%)	116 (36%)	112 (34%)	326	+ 2%
1981-82	84 (31%)	106 (38%)	85 (31%)	275	-16%
1982-83	89 (35%)	97 (38%)	68 (27%)	254	- 8%
1983-84*	75 (26%)	124 (43%)	91 (31%)	290	+14%
1984-85	69 (22%)	144 (46%)	99 (32%)	312	+ 7%
1985-86	69 (22%)	140 (46%)	97 (32%)	306	- 2%
SIMS					
1979-80	371 (91%)	31 (8%)	5 (1%)	407	
1980-81	179 (65%)	25 (9%)	73 (26%)	277	-32%
1981-82	142 (63%)	32 (15%)	51 (22%)	225	-19%
1982-83*	132 (64%)	37 (18%)	36 (18%)	205	- 9%
1983-84	163 (61%)	38 (14%)	65 (25%)	266	+30%
1984-85	156 (59%)	40 (15%)	67 (26%)	263	- 1%
1985-86	165 (62%)	35 (13%)	68 (25%)	268	+ 2%
SECONDARY:					
MURCHISON					
1979-80	127 (18%)	21 (3%)	561 (79%)	709	
1980-81	130 (24%)	148 (27%)	268 (49%)	546	-23%
1981-82	140 (28%)	129 (25%)	238 (47%)	507	- 7%
1982-83	127 (24%)	160 (30%)	241 (46%)	528	+ 4%
1983-84	133 (21%)	219 (35%)	280 (44%)	632	+20%
1984-85	122 (20%)	247 (40%)	249 (40%)	618	- 2%
1985-86*	117 (19%)	264 (43%)	236 (38%)	617	0%
LBJ					
1979-80	665 (42%)	142 (9%)	766 (49%)	1,573	
1980-81	732 (48%)	136 (9%)	663 (43%)	1,531	- 3%
1981-82	729 (52%)	119 (9%)	554 (39%)	1,402	- 8%
1982-83	718 (55%)	116 (9%)	464 (36%)	1,298	- 7%
1983-84	691 (59%)	91 (8%)	390 (33%)	1,172	-10%
1984-85	722 (63%)	103 (9%)	327 (28%)	1,152	- 2%
1985-86*	826 (63%)	114 (9%)	369 (28%)	1,309	+14%

*** Indicates first year of magnet program.**

Figure B-1. (Continued, Page 2 of 2)

FIGURE B-2

ANNUAL NUMBER OF TRANSFERS GRANTED
FOR THE PURPOSE OF ATTENDING THE MAGNET PROGRAM

STUDENT TRANSFER INFORMATION

Magnet Transfers To Magnet Schools: 1982-83 to 1985-86

ELEMENTARY:

TO:	Brooke				Bryker Woods				Gullett				Highland Park				Ortega				Sims			
From:	82	83	84	85	82	83	84	85	82	83	84	85	82	83	84	85	82	83	84	85	82	83	84	85
101 Allison																								
102 Andrews				1	2	3	1	1	5	3	2	1	2	4	4	3						3	1	1
103 Barton Hills					1	1		1					2	1										
104 Becker						1	1	2		1	1		1	1	2	2								
105 Blackshear									1			1					5	4	3					
106 Blanton			1	1					1	2	2	3												
107 Brentwood				1	2			2			1	4	1	1	2	1								
108 Brooke		1										1			1									
109 Brown					1	1	2	1	3	1														2
110 Bryker Woods																								
111 Campbell						1																		
112 Casis					1	1								1										
113 Cunningham									1	2	3	4					2	3	1					
114 Dawson									1															
116 Govalle													1	1	1	2						1	1	
117 Gullett																								
118 Harris						1	1		4	3	1	1	1	1		2						1	2	
119 Highland Park						2									1									
120 Joslin						1	1			1	11	6	1	1		1	1		1					
121 Lee			1			1	7	2	1	1			1											
122 Maplewood								1	1	1				1	1							2	1	1
123 Mathews						1				1	2	4		4	3	3		1						
124 Metz																1								
125 Oak Springs							3									1								2
126 Ortega																								
127 Sanchez		1				1	2																	
128 Pease									1				1	1										
129 Pecan Springs																							1	1
130 Pleasant Hill							1		1	2	1	2	1		1	1						1		
131 Read				1						2	2	2												

Figure B-2. ANNUAL NUMBER OF TRANSFERS GRANTED FOR THE PURPOSE OF ATTENDING THE MAGNET PROGRAM. Transfers for all other reasons excluded. (Page 1 of 3)

ELEMENTARY (cont.)

TO:	Brooke				Bryker Woods				Gullett				Highland Park				Ortega				Sims			
	82	83	84	85	82	83	84	85	82	83	84	85	82	83	84	85	82	83	84	85	82	83	84	85
I32 Reilly										2	2												1	2
I33 Ridgetop				1				2	1	3	2	2	2	1	1	1								
I34 Rosedale*										2														
I35 Rosewood*										1				1								5	2	1
I36 St. Elmo							1	1		1		1		1	1							1	1	1
I38 Summitt							1			1			2	2	6	5								
I39 Sims																								
I40 Travis Heights						1	1			1	1	2	1	2					1					
I41 Walnut Creek																								
I42 Allan															2	2						2	4	
I43 Patton												1												
I44 Wooten						1						1	1	1	2	1								1
I45 Zavala										1														
I46 Zilker					3	1			1		1	1												
I47 Menchaca				3	1	1	2	2	7	12	7	5	4	3	9	5		1	1	1				
I48 Oak Hill			1			2		1		4	6	4	1	3	5	5		1	2	1				
I49 Barrington									6	6	12	5												
I50 Norman																								5
I51 Pillow														2	5	9								
I52 Wooldridge										1	2	1		1										
I54 Doss											1	1	4	4	3	4								
I55 Hill												1	2	3	3	2								
I56 Odom										1	1	4	2	2	2	1								
I57 Winn							1		2		1	2	6	5	3	3								
I58 Sunset Valley						1	1	1							1									
I59 Graham			1								2	3												
I60 Linder		1			2	3	4	2			3	4		2	1	2								
I61 Cook			1	3					2	4	2	1				1								
I62 Houston					1	2	2	4	1	3	3	2		1	4	3		2	4	1				1
I66 Williams		1			1	1	4	3		2	6	8		7	7	10		4	5	3		1	1	
I67 Webb			1	1					7	4	1								1			1		
I68 Langford					3	4	4	3			1	6			3	2					1	1		
TOTAL TRANSFERS	0	4	6	12	18	32	40	29	47	69	80	84	37	58	74	73	0	16	22	11	1	19	15	18

*No longer used as elementary schools

Figure B-2. (Continued, Page 2 of 3)

STUDENT TRANSFER INFORMATION

Magnet Transfers To Magnet Schools: 1985-86

SECONDARY:

To:	Murchison 85
From:	
043 Fulmore	1
045 Lamar	1
046 Burnet	2
047 O. Henry	0
048 Pearce	1
049 Porter	3
051 Martin	0
054 Bedichek	0
055 Dobie	1
TOTAL	9

To:	Science Academy 85
From:	
002 Austin	8
003 Johnston	29
004 Lanier	24
005 McCallum	12
006 Reagan	20
007 Travis	12
008 Crockett	18
009 Anderson	9
TOTAL	132

Figure B-2. (Continued, Page 3 of 3)

FIGURE B-3

MAGNET TRANSFERS IN RELATION TO ALL TRANSFERS
AND TO CAMPUS ENROLLMENT

Figure B-3. MAGNET TRANSFERS IN RELATION TO ALL TRANSFERS AND TO CAMPUS ENROLLMENT. (Page 1 of 2)

STUDENT TRANSFERS TO MAGNET SCHOOL CAMPUSES
1980-81 to 1985-86

SCHOOL & YEAR	TOTAL TRANS	% of TOT ENRLLMNT	MAGNET TRANS	% OF TOT ENRLLMNT	% OF TOT TRANS	MINORITY MAGNET	% OF MAGNET	TRANS OUT	% OF TOT ENRLLMNT	MINORITY TRANS OUT	% OF TOT ENRLLMNT
ELEMENTARY											
BROOKE											
80-81	28	7%	0	0	0	0	0	9	2%	5	1%
81-82	25	7%	0	0	0	0	0	12	3%	6	1%
82-83	14	4%	0	0	0	0	0	15	4%	13	3%
83-84	25	7%	4	1%	16%	1	25%	16	4%	13	3%
84-85	54	16%	6	2%	11%	2	33%	28	8%	13	4%
85-86	53	16%	12	4%	23%	4	33%	34	10%	11	3%
BRYKER WOODS											
80-81	23	10%	0	0	0	0	0	7	3%	3	1%
81-82	22	10%	0	0	0	0	0	11	5%	6	3%
82-83	62	27%	18	8%	29%	1	5%	12	6%	6	3%
83-84	79	37%	32	15%	40%	6	19%	16	7%	8	4%
84-85	82	30%	40	15%	49%	8	20%	33	15%	19	9%
85-86	51	22%	29	13%	57%	3	10%	31	11%	19	7%
GULLETT											
80-81	5	1%	0	0	0	0	0	12	3%	1	0%
81-82	14	4%	0	0	0	0	0	11	3%	7	2%
82-83	54	14%	47	12%	87%	6	13%	19	5%	14	4%
83-84	86	23%	69	19%	80%	11	16%	21	5%	12	3%
84-85	103	27%	80	21%	78%	16	20%	26	7%	16	4%
85-86	113	29%	84	22%	74%	19	23%	34	9%	23	6%
HIGHLAND PARK											
80-81	23	6%	0	0	0	0	0	8	2%	2	0%
81-82	38	11%	0	0	0	0	0	3	1%	1	0%
82-83	80	21%	37	10%	46%	8	22%	10	3%	6	2%
83-84	105	26%	58	15%	55%	11	19%	21	6%	11	3%
84-85	110	28%	74	19%	67%	11	15%	34	9%	11	3%
85-86	106	27%	73	19%	69%	14	19%	30	8%	14	4%

*NOTE: "Transfers Out" for each year are based on the total enrollment for the previous year, since transfers go into effect prior to the first day of school of the year for which they are granted.

STUDENT TRANSFERS TO MAGNET SCHOOL CAMPUSES
1980-81 to 1985-86

SCHOOL & YEAR	TOTAL TRANS	% of TOT ENRLLMNT	MAGNET TRANS	% OF TOT ENRLLMNT	% OF TOT TRANS	MINORITY MAGNET	% OF MAGNET	TRANS OUT	% OF TOT ENRLLMNT	MINORITY TRANS OUT	% OF TOT ENRLLMNT
ORTEGA											
80-81	8	2%	0	0	0	0	0	9	3%	3	1%
81-82	7	3%	0	0	0	0	0	11	3%	7	2%
82-83	13	5%	0	0	0	0	0	16	6%	7	3%
83-84	26	9%	16	6%	62%	8	50%	19	7%	8	3%
84-85	34	11%	22	7%	65%	7	32%	14	5%	8	3%
85-86	27	9%	11	4%	41%	1	9%	18	6%	10	3%
SIMS											
80-81	2	1%	0	0	0	0	0	19	5%	10	2%
81-82	7	3%	0	0	0	0	0	28	10%	17	6%
82-83	11	5%	1	0	9%	0	0	24	11%	10	4%
83-84	45	17%	19	7%	42%	8	42%	21	10%	12	6%
84-85	43	16%	15	6%	35%	4	27%	32	12%	22	8%
85-86	53	20%	18	7%	34%	7	39%	39	15%	28	11%
SECONDARY											
MURCHISON											
85-86	142	23%	9	1%	6%	5	55%	17	3%	10	2%
LBJ											
85-86	197	15%	132	10%	67%	26	20%	197	17%	163	14%

*NOTE: "Transfers Out" for each year are based on the total enrollment for the previous year, since transfers go into effect prior to the first day of school of the year for which they are granted.

Figure B-3. (Continued, Page 2 of 2)

AUSTIN INDEPENDENT SCHOOL DISTRICT
Department of Management Information
Office of Research and Evaluation

January 27, 1986

To: Kathy Silva

From: Margie Gaines mlg

Subject: Student Transfer Information

Date Needed: January 31, 1986

Transfer information for the following selected schools and years is being requested for the purpose of the Magnet School Program Evaluation:

(One Copy Only For Each Year requested)

For school years ending 81, 82, 83, 84, 85, 86:	Year ending 86 only:
108	052
110	010
117	
119	
126	
139	

Information Needed:

Student transfers TO the above schools (STUTRTOL)
Student transfers FROM the above schools (STUTRLST)

Information needed includes student's name, number, grade, ethnicity, sending or receiving school, date of transfer, and reason for transfer.

Your response to this information request on or before January 31 would be greatly appreciated.

:mlg

Approved: David A. Doss
Assistant Director
Office of Research and Evaluation

Magnet Schools Assistance Program

Appendix C

SCIENCE ACADEMY ENTRANCE/SELECTION CRITERIA

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Magnet Schools Assistance Program

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SCIENCE ACADEMY ENTRANCE/SELECTION CRITERIA

Purpose

A common objection to magnet schools is that they attract the best and brightest students away from their home schools. In an effort to circumvent accusations of elitism while still admitting students capable of performing well in the intense curriculum, the Science Academy established an application and selection process that placed emphasis on the student's interest in science and math. The purpose of Appendix C is to evaluate the selection criteria used for admitting students to the Science Academy. Data were collected and analyzed to address the following decision and evaluation questions:

Decision Question D3. Should the Science Academy of Austin Magnet Program be continued as it is, modified, expanded, or discontinued?

> **Evaluation Question D3-6.** What are the Science Academy entrance criteria?
>
> **Evaluation Question D3-11.** What were the characteristics of students who:
> - Applied to the Science Academy?
> - Were accepted?
> - Enrolled?
> - Left?

The answers to these questions will provide information about what kind of student is interested in the Science Academy, is accepted, and either remains or leaves.

Procedure

Data Collection

Information regarding application procedures and student applicants was collected by the Magnet Evaluator from the Science Academy Director and from student files located at the Science Academy office at LBJ High School. The data were collected during the months of December, 1985, and January, 1986.

Each application submitted was reviewed and the quantitative information was obtained for analysis. Attachment C-1 is a copy of the application used for screening and selecting students.

Analysis

The scores obtained from the applications were entered into a computer data file and prepared for analysis by the following steps:

1. Student identification numbers, student interest ratings, and teacher recommendation ratings obtained from the applications were entered in a computer data file.

2. A coding system was established to indicate the action taken on each application. Each applicant had a code entered. The codes used were:

   1 = Applicant accepted and was still enrolled as of April 30, 1986.
   2 = Applicant accepted but dropped out by April 30, 1986.
   3 = Applicant cancelled prior to an accept/reject decision.
   4 = Applicant rejected.
   5 = Applicant accepted but student either cancelled or did not show.

3. A programmer in the Office of Research and Evaluation wrote a program to match student ID numbers with the eighth-grade ITBS computer file or the ninth- and tenth-grade TAP computer file to obtain accurate and recent standardized test scores. Test scores were entered on the original applications, but many students had missing data that could be obtained through this step.

4. The 252 students for whom complete test score information was available were retained for performing all statistical analyses other than frequency tabulations.

Statistical analyses performed on the data included frequencies, univariate statistics, Multiple Analysis of Variance (MANOVA), and discriminant function analyses. All procedures were performed using the Statistical Analysis System (SAS) programs. Attachment C-3 contains the SAS programs to perform the univariate and MANOVA statistics.

Science Academy applicants' percentile scores on subtests of a standardized test were used to predict whether a student should be accepted or rejected. Knowledge of how they were classified (accepted or rejected) and their standardized subtest scores was needed to determine how they should have been classified based on the mathematical rule derived by the discriminant function that best revealed the differences between the groups. Attachment C-2 shows the SAS command file for the discriminant function analysis.

A Multiple Analysis of Variance (MANOVA) was performed to examine the differences among the five classification groups on a set of standardized test subtest scores. In addition to the multivariate significance tests, post hoc pairwise comparisons for each classification pair were performed

using Scheffe's test for each of the five subtest variables to investigate where significant group differences existed.

Results

Entrance Criteria

Attachment C-1 is a copy of the application form used for selecting students for the Science Academy for Fall, 1985. Background information and a student essay were used for assessing the student's interest in science, math, or technology and the student's eagerness to attend the Science Academy. Two teacher recommendations were required for the purpose of obtaining information about each student's classroom behavior and performance.

Standardized test scores were used as a way to establish academic criteria that were presumed to be the minimum for success in the program. A preliminary guideline was used: the reading and math percentile scores should sum to at least 140, and no other score should be below the 50th percentile.

Based on the initial information gathered on the application, students were either rejected or invited for an interview with the Science Academy staff. During the interview, students were queried about their interest in attending the Science Academy. It was important that the student have the desire to attend without feeling pressured or persuaded by the parents.

Student Characteristics

The following frequencies were accurate as of April 30, 1986.

Of the 283 applications submitted:

- 199 (70%) were males, and
- 84 (30%) were females.

Of the 283 applicants whose ethnicity was known, each ethnic group was represented by the following number and percentage:

- Anglo 183 (65%),
- Black 55 (19%),
- Hispanic 32 (11%), and
- Asian 13 (5%).

Of the 283 applications for which the selection status was known (using the coding system indicated above), the number and percent in each category was as follows:

- 1 = Accept/Stay: 168 (59%),
- 2 = Accept/Drop: 25 (9%),
- 3 = Cancelled: 27 (10%),
- 4 = Rejected: 39 (14%), and
- 5 = Accept/Cancel: 23 (8%).

Figure C-1 is a frequency table by sex and ethnicity for each application status category.

Figure C-2 compares median percentile scores by ethnicity and grade level of those who applied and those who were accepted to districtwide median scores. Figure C-3 presents univariate information on the reduced set of student scores. The median, mean, standard deviation, and range are presented for each score considered in the selection process. Percentile and grade equivalent scores for eighth-grade ITBS subtest scores and ninth- and tenth-grade TAP subtest scores are presented separately. The univariate statistics revealed the following:

- The students who were accepted included students with subtest scores below the 50th percentile in one or more areas.
- In general, of the applicants who were accepted, the median percentile scores of students who stayed in the program were higher than the median scores of students who either dropped or declined acceptance.
- Many potentially successful students self-selected themselves out of the application-selection process. Their reasons for doing so are unknown.
- As a group, the students who were rejected failed to meet the preliminary guideline of mathematics + reading percentiles greater than or equal to 140. However, individuals with scores above 140 were rejected, and students with combined scores less than 140 were accepted.

Multivariate Statistics

Figure C-4 shows the classification output for the discriminant function analysis. Because there were only four ninth- and tenth- grade students who were rejected, only the eighth-grade reduced sample could be analyzed. The meaning of the results of the discriminant function classification are explained in the discussion. The discriminant function performed on the eighth-grade applicants using ITBS percentile subtest scores revealed the following:

- Of the 132 applicants who were accepted, 92.4% were accurately classified. Ten students (7.6%) should have been rejected based on percentile scores alone.

- Of the 33 eighth-grade applicants who were rejected, four students (12%) had percentile scores that would have justified accepting them.

- Overall, there was a 91.5% classification accuracy rate.

Figure C-5 shows the multivariate and univariate significance test results. Again, because of the limited number of ninth- and tenth-grade applicants, only the eighth-grade applicants were analyzed by means of a MANOVA. The results of the MANOVA and post hoc comparisons revealed the following:

- The overall MANOVA was significant using Wilk's Criterion, F (20, 594) = 9.94, $p < .0001$.

- The univariate significance test for each of the five subtest scores was significant beyond the alpha = .0001 level.

- For science subtest scores, only applicants who were accepted and stayed differed significantly from those who were rejected.

- There were no significant differences among the subgroups of the applicants who were accepted (i.e., stayed, dropped, or no show/cancelled).

Discussion

From Figure C-1 it can be determined that the Science Academy attracted more male than female applicants by a greater than 2:1 ratio. Males comprised 71% of the applicant pool and 72% of all who were accepted. Likewise, females represented 29% of the pool and 28% of those accepted. Males and females were represented in the acceptance group at proportions comparable to their representation in the entire group of applicants.

Asians were accepted at a rate comparable to their representation in the entire group. However, Hispanics were slightly underrepresented in the acceptance group (8% of all accepted compared to 11% of all applicants), and Blacks were slightly underrepresented at 17% of the acceptances compared to 20% of all the applicants. Anglos were somewhat overrepresented (70% compared to 64%). Despite these discrepancies, there was no evidence to suggest there was a definite bias toward either an ethnic or gender group given the composition of the pool of applicants.

With respect to achievement, the students accepted into the Science Academy represented a wide range of ability levels, although the majority tended to cluster around the 85th percentile. The median percentile and grade equivalent scores of those who applied and those who were accepted

were significantly above the districtwide medians for each ethnic group and on each of the ITBS or TAP subtests. However, because the sample sizes within some ethnic groups were very small (n=1 or n=2), thereby making median scores unreliable, comparisons to districtwide median scores should be made with caution.

The Science Academy had a relatively low attrition rate during the first year considering the nature and difficulty of the program. Of those who actually enrolled, 12.9% dropped out. Those who dropped generally did so because the family moved out of the district, the student wanted to return to the home school to be with friends, or because of disciplinary problems. Poor academic performance was not used as a reason for dismissal from the program because the entrance criteria stressed interest and motivation rather than achievement.

Because factors other than achievement were considered when selecting applicants, the discriminant function analysis could not consider non-quantitative criteria. Of the ten students who should have been rejected based on percentile scores alone, only one student had actually withdrawn to attend another school in the district. Whether or not achievement scores will predict attrition after the first year cannot be determined until a later time.

With respect to the four rejected students who qualified based on achievement, their rejection was most likely based on evidence that suggested the student did not have sufficient interest to be recommended for acceptance. Although the students likely had the ability to be successful, the intention was to avoid discontent by not selecting them.

The continued monitoring of the admission and selection process would likely reveal the accuracy with which academic success is predicted. Validation of the prediction ability of the first-year methods must wait until other outcome criterion data become available.

SCIENCE ACADEMY OF AUSTIN
APPLICANT SUMMARY

STATUS	MALE	FEMALE	ASIAN	BLACK	HISPANIC	ANGLO/OTHER
ACCEPT/STAY						
N	122	46	9	30	12	117
%	43	16	3	11	4	41
Accept/Drop						
N	19	6	0	4	1	20
%	7	2	0	1	.4	7
Accept/Cancel						
N	15	8	1	2	5	15
%	5	3	.4	1	2	5
Rejected						
N	24	16	2	13	9	16
%	8	6	1	5	3	6
Cancelled						
N	19	8	1	6	5	15
%	7	3	.4	2	2	5
Total						
N	199	84	13	55	32	183
%	70	30	5	19	11	65

Figure C-1. SCIENCE ACADEMY APPLICANT FREQUENCIES BY SEX AND ETHNICITY WITHIN CATEGORIES.

FIGURE C-2

MEDIAN PERCENTILE AND GRADE EQUIVALENT SCORES
BY GRADE LEVEL AND ETHNICITY

MEDIAN PERCENTILE AND GRADE EQUIVALENT SCORES
BY GRADE LEVEL AND ETHNICITY

Eighth Grade ITBS Subtests

	DISTRICTWIDE		SCIENCE ACADEMY APPLICANTS		SCIENCE ACADEMY ACCEPTANCES	
	PERCENTILE	GRADE EQUIVALENT	PERCENTILE	GRADE EQUIVALENT	PERCENTILE	GRADE EQUIVALENT
READING						
BLK	33	7.67	69	9.75	78	10.25
HSP	36	7.77	71	9.85	80	10.35
A/O	71	9.84	91	11.30	93	11.40
MATHEMATICS						
BLK	32	7.78	63	9.25	77	9.95
HSP	39	8.12	75	9.80	81	10.15
A/O	69	9.52	91	10.80	92	10.80
LANGUAGE						
BLK	46	8.41	72	10.20	82	10.90
HSP	48	8.54	74	10.35	85	11.15
A/O	76	10.42	92	11.50	93	11.80
WORK STUDY SKILLS						
BLK	33	7.55	69	9.75	83	10.55
HSP	41	8.05	76	10.20	82	10.50
A/O	73	9.98	92	11.30	94	11.45

Figure C-2. ITBS AND TAP MEDIAN PERCENTILE AND GRADE EQUIVALENT SCORES, BY GRADE LEVEL AND ETHNICITY, COMPARING SCIENCE ACADEMY APPLICANTS AND ACCEPTANCES TO DISTRICTWIDE MEDIANS. Grade 8: ITBS, (Page 1 of 3).

Ninth Grade TAP Subtests

	DISTRICTWIDE		SCIENCE ACADEMY APPLICANTS		SCIENCE ACADEMY ACCEPTANCES	
	PERCENTILE	GRADE EQUIVALENT	PERCENTILE	GRADE EQUIVALENT	PERCENTILE	GRADE EQUIVALENT
READING						
BLK	29	8.07	76	13.20	76	13.20
HSP	36	8.62	72	13.30	83	14.40
A/O	70	12.26	90	15.90	91	16.20
MATHEMATICS						
BLK	25	7.95	80	13.90	83	14.40
HSP	32	8.59	55	11.15	75	13.10
A/O	72	12.52	93	16.40	92	16.20
USING SOURCES						
BLK	36	8.73	68	13.70	68	13.70
HSP	44	9.39	85	14.60	88	15.30
A/O	72	12.50	93	16.80	93	16.80
SCIENCE						
BLK	26	7.64	76	13.00	77	13.20
HSP	33	8.28	62	11.85	90	15.30
A/O	69	11.98	95	16.10	95	16.10

Figure C-2. (Continued, Page 2 of 3), Grade 9: TAP.

Tenth Grade TAP Subtests

	DISTRICTWIDE		SCIENCE ACADEMY APPLICANTS		SCIENCE ACADEMY ACCEPTANCES	
	PERCENTILE	GRADE EQUIVALENT	PERCENTILE	GRADE EQUIVALENT	PERCENTILE	GRADE EQUIVALENT
READING						
BLK	39	9.68	61	12.20	61	12.20
HSP	43	10.08	--	-----	--	-----
A/O	74	14.06	77	14.80	77	14.80
MATHEMATICS						
BLK	36	9.45	39	9.80	39	9.80
HSP	44	10.44	--	-----	--	-----
A/O	74	14.19	73	14.10	73	14.10
USING SOURCES						
BLK	36	9.55	34	9.30	34	9.30
HSP	42	10.09	--	-----	--	-----
A/O	73	14.07	83	15.95	83	15.95
SCIENCE						
BLK	35	9.47	41	10.10	41	10.10
HSP	40	9.98	--	-----	--	-----
A/O	71	13.61	86	15.70	86	15.70

Figure C-2. (Continued, Page 3 of 3), Grade 10: TAP.

FIGURE C-3

SCIENCE ACADEMY APPLICANT STANDARDIZED TEST SCORES
BY DECISION CATEGORY

SCIENCE ACADEMY APPLICANT INFORMATION

8TH GRADE APPLICANTS

	INTEREST RATING	TEACHER RECOMMENDATIONS	SCIENCE RAWSCORE	READING PERCENTILE	READING GRADE EQUIVALENT	LANGUAGE PERCENTILE	LANGUAGE GRADE EQUIVALENT	WORK STUDY PERCENTILE	WORK STUDY GRADE EQUIVALENT	MATH PERCENTILE	MATH GRADE EQUIVALENT	MATH + READING PERCENTILE
ACCEPTED (n=133)												
Median	10.00	10.00	21.00	91.00	11.20	90.00	11.50	91.00	11.20	89.00	10.65	175.00
Mean	8.76	9.60	21.60	85.84	11.14	86.00	11.41	87.45	11.25	84.53	10.63	170.38
S. D.	1.61	1.21	5.77	13.09	1.21	14.67	1.27	13.24	1.20	14.10	1.04	23.62
Range	3-10	3-10	10-34	48-99	8.5-13.3	26-99	6.9-13.4	37-99	7.8-13.6	42-99	8.3-12.7	116-198
STAYED (n=106)												
Median	10.00	10.00	22.00	91.00	11.30	90.00	11.50	92.00	11.30	90.50	10.75	176.00
Mean	8.79	9.69	22.14	87.00	11.27	86.90	11.49	88.52	11.37	85.38	10.71	172.39
S. D.	1.56	.98	5.86	12.98	1.23	13.47	1.22	12.47	1.19	13.46	1.04	23.30
Range	3-10	4.10	10-34	48-99	8.5-13.3	26-99	6.9-13.4	37-99	7.8-13.6	42-99	8.3-12.7	116-198
DROPPED (n=18)												
Median	7.50	10.00	16.00	81.50	10.55	71.06	11.47	65.50	9.55	67.50	9.45	141.50
Mean	7.50	7.42	16.42	78.00	10.48	70.13	10.03	71.25	9.92	72.12	9.72	150.12
S. D.	1.04	3.25	6.02	23.07	1.57	23.76	1.65	20.09	1.24	19.40	.98	37.96
Range	6- 9	3-10	8-25	26-99	7.2-12.3	35-97	7.6-12.3	48-98	8.5-11.7	45-98	8.4-11	82-197
CANCEL/NO SHOW (n=19)												
Median	10.00	10.00	19.00	82.00	10.50	93.00	11.78	90.00	11.10	84.00	10.00	163.00
Mean	8.58	9.38	19.78	79.52	10.50	85.52	11.35	86.21	11.03	83.52	10.51	163.05
S. D.	1.97	1.46	4.77	13.34	.96	16.28	1.33	13.19	1.05	14.69	1.00	22.47
Range	4-10	4-10	10-29	55-97	9-12	35-99	7.6-12.9	49-99	8.6-12.5	47-99	8.5-12.2	121-196
REJECTED (n=32)												
Median	6.00	10.00	11.00	43.15	8.25	54.00	8.90	45.50	8.35	47.00	8.50	92.00
Mean	6.36	8.50	11.65	46.34	8.35	54.93	8.99	48.84	8.50	47.68	8.53	94.03
S. D.	2.28	2.66	5.03	22.21	1.40	20.85	1.52	20.16	1.31	20.01	1.17	36.02
Range	1-10	0-10	4-24	11-89	5.9-11.1	18-97	6.2-12.3	6-92	5.3-11.3	10-98	6.4-11.8	33-184
CANCELLED/PRE-ACCEPTED (n=24)												
Median	10.00	10.00	21.00	92.00	11.30	85.00	11.10	88.50	10.95	91.50	10.85	178.50
Mean	8.60	9.80	20.33	83.04	10.99	81.62	11.03	83.50	11.04	83.00	10.62	166.04
S. D.	2.01	.49	7.38	17.91	1.47	16.22	1.34	16.57	1.45	18.80	1.29	31.32
Range	2-10	8-10	7-33	48-99	8.5-13	49-99	8.6-12.8	49-99	8.6-13.3	32-99	7.8-12.7	94-198

Figure C-3. SCIENCE ACADEMY APPLICANT STANDARDIZED TEST SCORES BY DECISION CATEGORY. Grade 8: ITBS. (Page 1 of 2).

SCIENCE ACADEMY APPLICANT INFORMATION

9TH GRADE APPLICANTS

	INTEREST RATING	TEACHER RECOMMENDATION	READING PERCENTILE	READING GRADE EQUIVALENT	MATH PERCENTILE	MATH GRADE EQUIVALENT	USING SOURCES PERCENTILE	USING SOURCES GRADE EQUIVALENT	SCIENCE PERCENTILE	SCIENCE GRADE EQUIVALENT	MATH + READING PERCENTILE
ACCEPTED (n=52)											
Median	*	10.00	90.00	15.90	86.00	15.20	91.00	16.10	90.00	15.30	172.00
Mean	*	9.91	81.85	15.09	83.15	15.14	85.79	15.88	84.21	14.77	165.02
S. D.	*	.35	16.52	2.97	16.19	2.64	14.03	2.90	17.44	2.45	28.28
Range	*	8-10	28-99	8-19.9	30-99	8.4-18.9	34-99	9.1-21	13-99	6.1-18	83-198
STAYED (n=38)											
Median	*	10.00	90.00	15.90	90.00	15.75	91.00	16.10	90.00	15.30	175.50
Mean	*	9.90	82.89	15.13	86.89	15.49	88.52	16.13	86.21	14.88	169.79
S. D.	*	.36	16.55	2.90	10.60	2.16	9.40	2.47	15.24	2.21	22.89
Range	*	8-10	28-98	8-19	57-99	10.7-18.9	61-99	10.9-20.3	13-99	6.1-18	103-197
DROPPED (n=10)											
Median	*	10.00	91.00	16.20	84.50	14.70	88.00	15.35	95.00	16.10	177.50
Mean	*	9.30	84.20	15.64	81.20	14.85	84.90	15.43	87.00	15.14	165.40
S. D.	*	1.65	17.51	3.43	19.15	3.39	13.05	3.08	17.39	2.66	32.28
Range	*	5-10	44-99	9.3-19.3	45-99	9.5-18.6	66-99	11.5-19.7	50-99	9.9-17.6	121-198
CANCELLED/NO SHOW (n=4)											
Median	*	10.00	83.00	14.40	97.00	17.70	93.00	16.80	87.00	14.80	185.25
Mean	*	10.00	77.25	13.70	80.25	15.37	81.25	15.45	76.50	13.80	157.50
S. D.	*	0.00	16.50	2.50	33.50	4.65	26.93	4.37	28.91	3.79	49.77
Range	*	10-10	53-90	10.1-15.9	30-97	8.4-17.7	41-98	9.1-19.1	34-98	8.4-17.2	83-187
REJECTED (n=4)											
Median	*	10.00	34.00	8.45	22.50	7.75	39.00	8.95	42.50	9.15	57.50
Mean	*	8.00	34.50	8.50	25.50	7.95	46.00	9.75	42.25	9.15	60.00
S. D.	*	4.00	18.62	1.62	15.19	1.24	19.39	2.08	25.02	2.50	26.49
Range	*	2-10	17-53	7-10.1	12-45	6.8-9.5	32-74	8.3-12.8	15-69	6.4-11.9	32-93
CANCELLED/PRE-ACCEPTED (n=2)											
Median	*	*	88.50	16.20	87.50	15.70	97.50	19.30	93.00	15.85	176.00
Mean	*	*	88.50	16.20	87.50	15.70	97.50	19.30	93.00	15.85	176.00
S. D.	*	*	12.02	3.39	14.84	3.25	2.12	1.41	4.24	.77	26.87
Range	*	*	80-97	13.8-18.6	77-98	13.4-18	96-99	18.3-20.3	90-90	15.3-16.4	157-195

* Sample size too small to calculate reliable statistics.

Figure C-3. Grade 9: TAP. (Continued, Page 2 of 2)

SCIENCE ACADEMY DISCRIMINANT FUNCTIONS 15:39 MONDAY, APRIL 14, 1986 6

DISCRIMINANT ANALYSIS — CLASSIFICATION SUMMARY FOR CALIBRATION DATA: USER010.LBJKIDS

GENERALIZED SQUARED DISTANCE FUNCTION:

$$D^2_J(X) = (X-\bar{X}_J)' \, COV_J^{-1} \, (X-\bar{X}_J) + LN\,|COV_J| - 2\,LN\,PRIOR_J$$

POSTERIOR PROBABILITY OF MEMBERSHIP IN EACH DECSN:

$$PR(J|X) = EXP(-.5\,D^2_J(X)) \,/\, SUM\ EXP(-.5\,D^2_K(X))$$

NUMBER OF OBSERVATIONS AND PERCENTS CLASSIFIED INTO DECSN:

FROM DECSN	4	9	TOTAL
4	29 87.88	4 12.12	33 100.00
9	10 7.58	122 92.42	132 100.00
TOTAL PERCENT	39 23.64	126 76.36	165 100.00
PRIORS	0.2000	0.8000	

Figure C-4. CLASSIFICATION OUTPUT FOR THE DISCRIMINANT FUNCTION ANALYSIS. Performed on eighth grade applicants using ITBS percentile subtest scores.

FIGURE C-5

MULTIVARIATE AND UNIVARIATE SIGNIFICANCE TEST RESULTS

MANOVA USING ITBS SUBTEST PERCENTILE SCORES 2
16:26 WEDNESDAY, APRIL 23, 1986

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: RTPILE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	4	43594.93591769	10898.73397942	44.73	0.0001	0.494351	19.9162
ERROR	193	44591.25025253	243.66803417		ROOT MSE		RTPILE MEAN
CORRECTED TOTAL	187	88186.18617021			15.60986977		78.37765957

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE III SS	F VALUE	PR > F
DECSN	4	43594.93591769	44.73	0.0001	4	43594.93591769	44.73	0.0001

Figure C-5. MULTIVARIATE AND UNIVARIATE SIGNIFICANCE TEST RESULTS. Performed on eighth grade applicants by means of a MANOVA. (Page 1 of 6)

MANOVA USING ITBS SUBTEST PERCENTILE SCORES 3
16:26 WEDNESDAY, APRIL 23, 1986

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: LTPILE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	4	26054.73386525	6513.68346631	25.06	0.0001	0.353921	20.1815
ERROR	183	47562.69166667	259.90541894		ROOT MSE		LTPILE MEAN
CORRECTED TOTAL	187	73617.42553191			16.12158240		79.88297872

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE III SS	F VALUE	PR > F
DECSN	4	26054.73386525	25.06	0.0001	4	26054.73386525	25.06	0.0001

Figure C-5. (Continued, Page 2 of 6)

MANOVA USING ITBS SUBTEST PERCENTILE SCORES 4
16:26 WEDNESDAY, APRIL 23, 1986

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: WSPILE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	4	39591.47395229	9897.86848807	43.44	0.0001	0.487060	18.8418
ERROR	182	41695.18030303	227.84251532		ROOT MSE		WSPILE MEAN
CORRECTED TOTAL	187	81286.65425532			15.09445313		80.11170213

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE III SS	F VALUE	PR > F
DECSN	4	39591.47395229	43.44	0.0001	4	39591.47395229	43.44	0.0001

Figure C-5. (Continued, Page 3 of 6)

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: MTPILE

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	4	35918.32104019	8979.58026005	33.51	0.0001	0.422805	21.0276
ERROR	183	49034.20555556	267.94647845		ROOT MSE		MTPILE MEAN
CORRECTED TOTAL	187	84952.52659574			16.36907079		77.84574468

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE III SS	F VALUE	PR > F
DECSN	4	35918.32104019	33.51	0.0001	4	35918.32104019	33.51	0.0001

Figure C-5. (Continued, Page 4 of 6)

MANOVA USING ITBS SUBTEST PERCENTILE SCORES 6
16:26 WEDNESDAY, APRIL 23, 1986

GENERAL LINEAR MODELS PROCEDURE

DEPENDENT VARIABLE: SCIRS

SOURCE	DF	SUM OF SQUARES	MEAN SQUARE	F VALUE	PR > F	R-SQUARE	C.V.
MODEL	4	2780.83977004	695.20994251	20.26	0.0001	0.306895	29.7742
ERROR	183	6280.36767677	34.31894905		ROOT MSE		SCIRS MEAN
CORRECTED TOTAL	187	9061.20744681			5.85823771		19.67553191

SOURCE	DF	TYPE I SS	F VALUE	PR > F	DF	TYPE III SS	F VALUE	PR > F
DECSN	4	2780.83977004	20.26	0.0001	4	2780.83977004	20.26	0.0001

Figure C-5. (Continued, Page 5 of 6)

GENERAL LINEAR MODELS PROCEDURE

MANOVA TEST CRITERIA FOR THE HYPOTHESIS OF NO OVERALL DECSN EFFECT

H = TYPE III SS&CP MATRIX FOR: DECSN
E = ERROR SS&CP MATRIX
P = DEP. VARIABLES = 5
Q = HYPOTHESIS DF = 4
NE= DF OF E = 183
S = MIN(P,Q) = 4
M = .5(ABS(P-Q)-1) = 0.0
N = .5(NE-P-1) = 88.5

HOTELLING-LAWLEY TRACE = TR(E**-1*H) = 1.54079075 (SEE PILLAI'S TABLE #3)

F APPROXIMATION = 2(S*N+1)*TR(E**-1*H)/(S*S*(2M+S+1)) WITH S(2M+S+1) AND 2(S*N+1) DF

F(20,710) = 13.67 PROB > F = 0.0001

PILLAI'S TRACE V = TR(H*INV(H+E)) = 0.63940439 (SEE PILLAI'S TABLE #2)

F APPROXIMATION = (2N+S+1)/(2M+S+1) * V/(S-V) WITH S(2N+S+1) AND S(2N+S+1) DF

F(20,728) = 6.93 PROB > F = 0.0001

WILKS' CRITERION L = DET(E)/DET(H+E) = 0.38430833 (SEE RAO 1973 P 555)

W = -(NE-.5(P-Q+1))*LN(L) = 174.0484
U = NE-.5(P-Q+1) = 182.0000
Z = SQRT((P*P*Q*Q-4)/(P*P+Q*Q-5)) = 3.3166
B = (P*Q-2)/4 = 4.5000

F APPROXIMATION = (U*Z-2B)/(P*Q)*(1-L**1/Z)/L**1/Z WITH P*Q AND U*Z-2B DF

F(20,594) = 9.94 PROB > F = 0.0001

ROY'S MAXIMUM ROOT CRITERION = 1.50040577 (SEE AMS VOL 31 P 625)

FIRST CANONICAL VARIABLE YIELDS AN F UPPER BOUND

F(4,183) = 68.64 (UPPER BOUND)

Figure C-5. (Continued, Page 6 of 6)

ATTACHMENT C-1

1986 SCIENCE ACADEMY STUDENT APPLICATION FORMS

PLEASE ATTACH A RECENT PHOTO SO THAT WE GET TO KNOW YOU QUICKLY

INTERVIEWS: FEBRUARY 15, 1986
PLEASE RETURN APPLICATIONS TO:
Applications
c/o The Science Academy of Aust
7309 Lazy Creek Lane
Austin, Texas 78724-3299.

1986 SCIENCE ACADEMY STUDENT APPLICATION FORM

(PLEASE PRINT ANSWERS 1-9)

1. Name_____ Grade_____

2. Date of Birth_____ Male_____ Female_____

3. Address_____
Street Apt. #

_____
City State Zip Code

4. Home phone #_____ Parent work #_____

5. Name of Parent(s) / Guardian(s)_____

Address(es) of Parent(s)/Guardian(s)_____

_____
City State Zip Code

6. Present School_____

7a. What are your plans after graduating from high school?

_____

_____

7b. Semester/Year applying for:_____

8. Name the extra-curricular activities in which you participate:

_____ _____ _____

_____ _____ _____

9. What topics in science and/or mathematics interest you most?

_____

_____

(PLEASE WRITE (CURSIVE) ANSWERS 10-17 IN A LEGIBLE MANNER -NO TYPING)

10. What hobbies and/or strong interests do you have?_____

11. Give the names of teachers who have taught you and are completing the recommendation forms. (Preferably science, mathematics, and/or English teachers).

A. Name_____

Course taught_____School_____

B. Name_____

Course taught_____School_____

12. Briefly describe your participation in science and/or mathematics activities, both in and out of school (Include clubs, fairs, workshops, research projects, jobs, volunteer work, etc.)_____

_____

_____

_____

13. What has been your greatest challenge in life, to this point?

_____

_____

_____

_____

14. Have you taken a foreign language? _____ If so, which language?

_____

Which foreign language(s) would you take at the Science Academy?

____French ____Spanish ____Russian ____Latin ____German

15. List any honors or awards you have won (both in and out of school)

_____

_____

_____

16. In the space provided below, please write (cursive) a brief essay explaining why you wish to attend the Science Academy.

SCIENCE ACADEMY STUDENT APPLICATION

TEACHER RECOMMENDATION FORM

TO TEACHER: The following checklist is designed to assist us in the evaluation of applicants to the Science Academy of Austin. Please circle the appropriate number that best describes the student below.

STUDENT'S NAME_____

	UNSATISFACTORY		SATISFACTORY		*EXCELLENT
1. Academic performance in your class	1	2	3	4	5
2. Academic potential and/or ability	1	2	3	4	5
3. Industry/perseverance	1	2	3	4	5
4. Influence/leadership	1	2	3	4	5
5. Initiative	1	2	3	4	5
6. Curiosity	1	2	3	4	5
7. Sociability/social maturity	1	2	3	4	5
8. Dependability/ cooperativeness	1	2	3	4	5
9. Attendance/ punctuality	1	2	3	4	5
10. Motivation	1	2	3	4	5

*PLEASE FEEL FREE TO MAKE ADDITIONAL COMMENTS ON THE BACK OF THIS SHEET. INCLUDE AN EXAMPLE FOR EACH RATING OF EXCELLENT. THIS IS IMPORTANT TO THE EVALUATION.

Teacher's Signature_____Date_____

Class(es) in which evaluator taught this applicant:_____

_____

Report card grade(s) earned:_____

INTERVIEWER FORM

1. Please make the applicants feel wanted and welcomed.
2. Remember that many of the applicants are concerned that they might not be accepted.
3. During each interview (15-20 minutes) allow the applicant some time to ask questions about LBJ.
4. Tell the applicant a little about yourself.
5. Someone will deliver applications to and from your table.
6. Review each application for a few minutes before the interview.
7. Ask these questions in any order you choose.
8. Add your own questions as applicable.
9. Thank you for your time and effort.
10. Place this completed form with the application.

INTERVIEWER'S NAME_____

STUDENT'S NAME PRESENT SCHOOL

A. If you were designing the Science Academy program for your special needs, describe the classes, teachers, and opportunities so that they are ideal for you.

B. Who wants you to attend the Science Academy more, you or your parents? Why?

C. Would you come to this program if your parents were the only ones who wanted you to attend? Why or why not?

D. Which activities are most enjoyable to you? Will you participate in this activity while at the Science Academy?

E. What are your plans if you are not accepted into the Science Academy?

F. What have you heard about the Science Academy program?

G. Which of your friends will be in the Science Academy program? In your opinion, why are they attending?

H. What makes you feel uncomfortable about attending the Science Academy at LBJ?

I. What questions do you have about this program?

** EVALUATION: This student would be (excellent/good/fair/poor) for the Science Academy program at LBJ.

PARENT INTERVIEW

1. Why do you want your child to attend the Science Academy of Austin?

2. To what degree are you willing to provide the support necessary for your child to participate in the Science Academy program? (Transportation, expenses, rescheduling of activities, assisting with Academy projects, meeting with teachers, etc.).

3. Will you attend and participate in parent-teacher meetings when they are scheduled?

4. What else can you tell us about your child that might affect his/her performance at the Science Academy? (health problems, behavior, etc.)

5. Comments:

Signature _____ Parent/Guardian
(circle one)

NAME_____

STUDENT ID#_____ETHN_____

I. STUDENT INTEREST AND DESIRE

-Does the student's application indicate a strong interest in science or math or technology?
(Yes, No, Somewhat) _____

-Does the student seem eager to attend the SA?
(Yes, No, Somewhat) _____

II. TEACHER RECOMMENDATION

# of 2 ratings _____

# of 1 ratings _____

III. I.T.B.S. TEST

List percentile scores:

RT	LT	WST	MT
_____	_____	_____	_____

Evaluate as follows:

RT + MT $\geq$ 140 (Yes / No) _____

Each of the above scores $>$ 50 (Yes / No) _____

Each of the above scores $>$ 60 (Yes / No) _____

Science section percentile score: _____

IV. NUMBER OF ESSAY GRAMMATICAL MISTAKES _____

Essay answers question (Yes, No, Somewhat) _____

V. INTERVIEW RESULTS IN POSITIVE RECOMMENDATION
(Yes, No, Somewhat) _____

Name _____ Present School _____

Address _____

Phone _____

I formally accept my admission to the Science Academy of Austin at LBJ. I have completed the transfer form and choice sheet at the interview or I shall enclose these completed forms with my acceptance.

Student signature of acceptance _____

Parent signature of acceptance _____

Date _____

Despite my acceptance at the Science Academy of Austin at LBJ, I have decided to forego this opportunity for the following reasons: _____

_____

_____

Student signature of non-acceptance _____

Parent signature of non-acceptance _____

Date _____

SAS COMMAND FILE FOR THE DISCRIMINANT FUNCTION ANALYSIS.

```
1       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    15:39 MONDAY, APRIL 14, 1986

NOTE: THE JOB EV7SASMG HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (019860011).

NOTE: CPUID    VERSION = FF  SERIAL = 013553  MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1          DATA LBJKIDS;                                                    00000110
2             SET SCIACDIT;                                                 00000120
3          TITLE 'SCIENCE ACADEMY DISCRIMINANT FUNCTIONS';                  00000130
4             IF DECSN NE 3;                                                00000140
5             IF DECSN LE 2 THEN DECSN=9;                                   00000150
6             IF DECSN EQ 5 THEN DECSN=9;                                   00000160

NOTE: DATA SET USER01C.LBJKIDS HAS 166 OBSERVATIONS AND 19 VARIABLES. 46 OBS/TRK.
NOTE: THE DATA STATEMENT USED 5.56 SECONDS AND 322K.

7          PROC SORT DATA=LBJKIDS; BY DECSN;                                00000170
8                                                                           00000180

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER01C.LBJKIDS HAS 166 OBSERVATIONS AND 19 VARIABLES. 46 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 21.37 SECONDS AND 292K.

9          PROC DISCRIM POOL=TEST SLPOOL=.05 LISTERR;                       00000190
10            CLASS DECSN;                                                  00000200
11            ID STUID;                                                     00000210
12            PRIORS PROPORTIONAL;                                          00000220
13            VAR RTPILE WSPILE MTPILE SCIRS LTPILE;                        00000230
14                                                                          00000240

NOTE: THE PROCEDURE DISCRIM USED 6.52 SECONDS AND 416K AND PRINTED PAGES 1 TO 6.

15         PROC DELETE DATA=LBJKIDS;                                        00000250
16                                                                          00000260

NOTE: THE PROCEDURE DELETE USED 1.37 SECONDS AND 284K.
NOTE: SAS USED 416K MEMORY.

NOTE: SAS INSTITUTE INC.
      SAS CIRCLE
      PO BOX 8000
      CARY, N.C.  27511-8000
```

ATTACHMENT C-3

SAS PROGRAM PERFORMING THE UNIVARIATE
AND MANOVA STATISTICS

```
1       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    16:26 WEDNESDAY, APRIL 23, 1986

NOTE: THE JOB EV7SASMG HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (D1986C01).

NOTE: CPUID   VERSION = FF  SERIAL = 013553  MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1           DATA LBJKIDS;                                                  00000110
2              SET SCIACDIT;                                               00000120
3           TITLE 'MANOVA USING ITBS SUBTEST PERCENTILE SCORES';           00000130
4                                                                          00000140

NOTE: DATA SET USER010.LBJKIDS HAS 190 OBSERVATIONS AND 19 VARIABLES. 46 OBS/TRK.
NOTE: THE DATA STATEMENT USED 4.97 SECONDS AND 322K.

5           PROC GLM;                                                      00000150
6                CLASS DECSN;                                              00000160
7                MODEL RTPILE LTPILE WSPILE MTPILE SCIRS=DECSN;            00000170
8                LSMEANS DECSN;                                            00000180
9                MANOVA H=DECSN / PRINTH PRINTE;                           00000190
10               MEANS DECSN / SCHEFFE;                                    00000200
11                                                                         00000210
12                                                                         00000220
13                                                                         00000230
14                                                                         00000240
15                                                                         00000250
16                                                                         00000260
17                                                                         00000270
18                                                                         00000280

NOTE: THE PROCEDURE GLM USED 10.29 SECONDS AND 688K AND PRINTED PAGES 1 TO 15.

19          PROC DELETE DATA=LBJKIDS;                                      00000290
20                                                                         00000300

NOTE: THE PROCEDURE DELETE USED 1.64 SECONDS AND 294K.
NOTE: SAS USED 688K MEMORY.

NOTE: SAS INSTITUTE INC.
      SAS CIRCLE
      PO BOX 8000
      CARY, N.C.  27511-8000
```

```
1       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    7:17 MONDAY, APRIL 28, 1986

NOTE: THE JOB EV7SASMG HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (01986001).

NOTE: CPUID   VERSION = FF   SERIAL = 013553   MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1          DATA STATS08 (DROP=GRADE SEX SCITAKEN ERRORS TREC INTRST);          00000110
2             SET SCIACDIT;                                                    00000120
3             IF DECSN=. THEN DELETE; IF ETH=. THEN DELETE;                    00000130
4             IF ETH=2 THEN ETH=5;                                             00000150
5                                                                              00000151
6             IF DECSN LE 2 OR DECSN EQ 5;                                     00000160
7                                                                              00000170
8                                                                              00000180

NOTE: DATA SET USER010.STATS08 HAS 132 OBSERVATIONS AND 13 VARIABLES. 66 OBS/TRK.
NOTE: THE DATA STATEMENT USED 4.59 SECONDS AND 322K.

8             PROC SORT; BY ETH;                                               00000180
9                                                                              00000190

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.STATS08 HAS 132 OBSERVATIONS AND 13 VARIABLES. 66 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 11.24 SECONDS AND 292K.

9             PROC UNIVARIATE; BY ETH;                                         00000190
10                                                                             00000220
11                                                                             00000230

NOTE: THE PROCEDURE UNIVARIATE USED 5.60 SECONDS AND 386K AND PRINTED PAGES 1 TO 30.

12         DATA STATS910 (DROP=SEX TREC INTRST);                               00000240
13            SET SCIACDTP;                                                    00000250
14            RULE=HTPILE+RDPILE;                                              00000260
15            IF DECSN=. THEN DELETE; IF ETH=. THEN DELETE;                    00000270
16            IF ETH=2 THEN ETH=5;                                             00000271
17            IF DECSN LE 2 OR DECSN EQ 5;                                     00000280
18                                                                             00000290

NOTE: DATA SET USER010.STATS910 HAS 57 OBSERVATIONS AND 15 VARIABLES. 58 OBS/TRK.
NOTE: THE DATA STATEMENT USED 3.07 SECONDS AND 306K.

18            PROC SORT; BY GRADE;                                             00000290
19                                                                             00000300

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.STATS910 HAS 57 OBSERVATIONS AND 15 VARIABLES. 58 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 12.60 SECONDS AND 292K.

19            PROC SORT; BY ETH;                                               00000300
20                                                                             00000310

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
```

```
2       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASHG                    7:17 MONDAY, APRIL 28, 1986

          REQUIRED BY YOUR SYSTEM SORT UTILITY.
          THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.STATS910 HAS 57 OBSERVATIONS AND 15 VARIABLES. 58 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 10.95 SECONDS AND 292K.

20            PROC UNIVARIATE; BY GRADE ETH NOTSORTED;                          00000310
21                                                                              00000311

NOTE: THE PROCEDURE UNIVARIATE USED 7.15 SECONDS AND 384K AND PRINTED PAGES 31 TO 85.

22            PROC DELETE DATA=STATS08;                                         00000312

NOTE: THE PROCEDURE DELETE USED 1.38 SECONDS AND 284K.

23            PROC DELETE DATA=STATS910;                                        00000313
24                                                                              00000314

NOTE: THE PROCEDURE DELETE USED 1.32 SECONDS AND 284K.
NOTE: SAS USED 386K MEMORY.

NOTE: SAS INSTITUTE INC.
      SAS CIRCLE
      PO BOX 8000
      CARY, N.C.  27511-8000
```

Magnet Schools Assistance Program

Appendix D

SCIENCE ACADEMY STUDENT ACHIEVEMENT

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Magnet Schools Assistance Program

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SCIENCE ACADEMY STUDENT ACHIEVEMENT

Purpose

The Science Academy students represented a select group of students in terms of their standardized test scores prior to selection and admission (see Appendix C). Therefore, it was of interest to examine their achievement at the end of the first year as measured by the Tests of Achievement and Proficiency (TAP). The following evaluation question was posed in order to examine information regarding student performance.

Evaluation Question D3-14. What were the characteristics of Science Academy students with respect to achievement?

Procedure

Data Collection

All data used to analyze achievement was available on the District's computer files. Science posttest scores were taken from the 1986 TAP file, and pretest scores were taken from either the 1985 ITBS or TAP file and added to the ROSE file (explained below).

Analyses

In order to compare the achievement performance of Science Academy students in 1985-86 to other students districtwide, several statistical procedures were performed. These analyses, known as ROSE, the Report On School Effectiveness, were developed in the AISD to provide information about schools based on student achievement. Regression analyses were used to produce predicted achievement levels in reading, mathematics, and science for each student based on a variety of characteristics, such as:

- Previous achievement level,
- Sex,
- Ethnicity,
- Family income (whether or not a student or sibling received a free or reduced-price lunch),
- Whether or not the students's school was impacted by desegregation,
- Whether or not a student was reassigned by the desegregation plan, and
- Whether or not the student was a transfer student.

The predicted scores were compared to the students' actual scores. Gains or losses in achievement were expressed in terms of grade equivalents. A

value of +.10 would mean that the students scored one month higher on the average than similar students districtwide at the same grade level. The Report On School Effectiveness (ROSE), ORE Pub. No. 85.N, provides more detailed information on the nature and purpose of the ROSE and for the definitions of the vectors used in the regression equations.

For doing the analyses for the Science Academy students, the following steps were followed.

- Because the ROSE file did not include science test scores (only mathematics and reading), a ROSE file was created which included the 1985 ITBS total battery grade equivalent score or the 1985 TAP science grade equivalent and the 1986 TAP science grade equivalent scores for all high school students districtwide (see Attachment D-1a). (The ITBS does not have a science subtest; hence, the total battery score was used.)

- To obtain a predicted science achievement level for each student, regression analyses on science scores were run separately for ninth and tenth graders using only those students who had valid mathematics and reading tests (under the assumption that the majority of the test sections were taken under conditions that yielded valid scores if mathematics and reading were valid). A score was considered invalid if the student was special ed, A or B LEP, or if a condition arose during testing that could have affected the validity of the subtest.

- The residual science score, which is the difference between the predicted and actual score, was plotted against the 1985 pretest score for each student (ITBS total battery for ninth graders and TAP science grade equivalent for tenth graders), and outliers were identified for removal if their residual score was beyond the third standard deviation (+/- 3 std).

- The regressions were rerun with outliers removed (see Attachment D-1b).

- The predicted achievement level was found for each Science Academy student by selecting them off of the districtwide ROSE file.

- The average residual for the Science Academy students was then calculated and compared to the average residual for the District at the two grade levels for statistical significance (see Attachment D-1c). If the z-score for the mean residual was greater than 1.96 ($p < .05$), then the Science Academy students exceeded their predicted gain and also gained more than similar students districtwide.

- ROSE analyses for reading and mathematics were done in the same way, except that outliers had already been eliminated from the file (see Attachment D-2).

Results

The results are presented in Figure D-1 below, which shows the mean residual and the number of students on which the analysis was based and a verbal descriptor summarizing the results.

Program: Science Academy, LBJ High School

	Performance In...		
GRADE	**READING**	**MATHEMATICS**	**SCIENCE**
NINE	Exceeded Predicted Gain (+.46 n=93)	Achieved Predicted Gain (+.32 n=93)	Exceeded Predicted Gain (+.92 n=91)
TEN	Achieved Predicted Gain (+.37 n=36)	Exceeded Predicted Gain (+.78 n=36)	Achieved Predicted Gain (+.42 n=36)

Figure D-1. ROSE ANALYSES COMPARING SCIENCE ACADEMY STUDENTS TO SIMILAR STUDENTS DISTRICTWIDE.

The 1986 TAP median grade equivalent scores for the Science Academy students and students districtwide in reading, mathematics, and science are presented in Figure D-2 below. Districtwide scores were obtained from the report, Student Achievement, 85-86, ORE Pub. No. 85.58.

1986 TAP MEDIAN GRADE EQUIVALENT SCORES

	READING	MATHEMATICS	SCIENCE
Grade 9:			
Science Academy	15.90	15.50	15.70
Districtwide	10.16	10.52	10.19
Grade 10:			
Science Academy	17.30	17.35	16.00
Districtwide	12.65	12.64	12.28

Figure D-2. TAP MEDIAN GRADE EQUIVALENT SCORES, 1986. Science Academy versus districtwide scores.

Discussion

After inspecting these results, it would be interesting to hypothesize why ninth- and tenth-grade patterns of achievement were so different. Why did ninth graders exceed their predicted level of achievement in science but tenth graders did not? Why did tenth graders exceed predicted gains in mathematics but ninth graders did not?

The TAP teacher's manual was examined for information that would help explain the science results. The test level at which ninth graders were tested primarily covered scientific reasoning (15% of all items), biology (43%), and earth and space science (35%), with five questions covering physics and chemistry (3% each). Ninth-grade Science Academy students took a double period of biology, and some took chemistry or physics. Therefore, compared to other students districtwide, ninth-grade Academy students had more experience with the science concepts and skills measured by the TAP and would be expected to outgain similar students districtwide.

The science tested by the TAP at the tenth-grade level does not differ significantly in content from the ninth-grade level, although scientific reasoning (29%) is stressed more and biology (37%) is tested less, and there are four questions on physics and chemistry (3% each). Higher level skills are emphasized more at the tenth-grade level. However, the tenth-grade Science Academy curriculum covered mostly physics and chemistry. Tenth-grade Science Academy science enrollments were only 32% biology (1st semester) and 20% (2nd semester) compared to 58% biology enrollments each semester districtwide. Therefore, given the content of the test, which mismatched the Science Academy curriculum, the tenth-grade Science Academy students' achievement did not differ significantly from the level of achievement attained by other students districtwide. Science Academy students did not have the opportunity to demonstrate proficiency in science, because they were not tested in the content areas they studied during the year.

The ROSE results were shared with the director, who provided insight into some possible explanations for the discrepancy in mathematics achievement levels. The mathematics curriculum for the ninth- and tenth-grades was well- developed, but was not implemented well at the ninth-grade level. A new, inexperienced algebra teacher and an experienced geometry teacher, who had not taught algebra in several years, but taught algebra to ninth graders were possible contributors to the discrepancy between ninth- and tenth-grade achievement. On the other hand, very experienced teachers with several math competition championships to their credit taught tenth-grade mathematics.

More attention could be devoted to identifying other conditions and experiences that would contribute to or confound the achievement levels of the Science Academy students. As the students move from grade to grade, it is expected that the cumulative effect of the Science Academy experience would impact achievement.

It is also possible that a ceiling effect was beginning to show. Because most of the Science Academy students were achieving at high levels, the norming scales could no longer make meaningful discriminations between students. Tenth graders at the upper end could actually lose grade equivalent points and still achieve their predicted gain. At the higher TAP percentile levels, larger gains in grade equivalent points are needed to maintain the same percentile score than someone at a lower percentile. For example, a ninth-grade student at the 50th percentile on science would need to gain nine months to be at the 50th percentile when tested in the tenth-grade. On the other hand, a student at the 80th percentile would need to gain the equivalent of one year and two months to remain at the 80th percentile.

Consideration should be given to testing Science Academy students on a higher level version of the TAP science subtest in addition to the regular level. Out-of-level testing would bring in additional chemistry and physics items and thereby provide an opportunity to test concepts and skills learned during the year as well as provide a higher ceiling. More meaningful comparisons with other students and better estimations of actual gains in science achievement could then be made. Out-of-level testing should yield greater variability in test scores and better prediction of achievement for the Science Academy students.

References

Doss, David A. (1986) Report On School Effectiveness (ROSE), 1985-86 (Pub. No. 85.N.). Austin, TX.: Austin Independent School District, Office of Research and Evaluation.

Mangino, E., et. al. (1986) Student Achievement 85-86 (Pub. No. 85.58). Austin, TX.: Austin Independent School District, Office of Research and Evaluation.

Attachment D-1a

CREATION OF SCIENCE ROSE FILE

APPENDIX D

```
1          S A S   L o G   VSE SAS 82.4          VSE 5.1 JOB EV7SASMG                    14:11 FRIDAY, JUNE 20, 1986

NOTE: THE JOB EV7SASMG HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (01986001).

NOTE: CPUID   VERSION = FF  SERIAL = 013553  MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1                                                                                    00000170
2          OPTIONS MISSING=.;                                                        00000180
3           DATA KOSEMG;                                                             00000190
4          *   KOSE FILE;                                                            00000200
5              INFILE KOSE22 RECFM=F LRECL=100 BLKSIZE=100;                          00000210
6              INPUT      STUID      $ 1-7                                          00000220
7                         STUNAME    $ 8-27                                         00000230
8                         PRELCC     $ 28-30                                        00000240
9                         PREADV     $ 31-33                                        00000250
10                        PREETH     $ 34                                           00000260
11                        PREGRADE   $ 35-36                                        00000270
12                        PRELEVEL   $ 37-38                                        00000280
13                        PREFORM    $ 39                                           00000290
14                        LCC        $ 40-42                                        00000300
15                        ADVISOR    $ 43-45                                        00000310
16                        ETHNIC     $ 46                                           00000320
17                        GRADE      $ 47-48                                        00000330
18                        LEVEL      $ 49-50                                        00000340
19                        FORM       $ 51                                           00000350
20                        SEX        $ 72                                           00000360
21                        DESEGSTA   $ 73                                           00000370
22                        LISTAT     $ 74                                           00000380
23                        KVALID     $ 79                                           00000390
24                        MVALID     $ 80;                                          00000400
25                                                                                   00000410
26                                                                                   00000420
27                                                                                   00000430

NOTE: INFILE KOSE22 HAS THE FOLLOWING CHARACTERISTICS:
      BCB=(BLKSIZE=100,LRECL=100,RECFM=F)

NOTE: 11317 LINES WERE READ FROM INFILE KOSE22.
NOTE: DATA SET USERID.KOSEMG HAS 11317 OBSERVATIONS AND 19 VARIABLES. 132 OBS/TRK.
NOTE: THE DATA STATEMENT USED 130.29 SECONDS AND 330K.

27         DATA ITBS;                                                                00000430
28         INFILE ITBS29 RECFM=F LRECL=1300 BLKSIZE=3900;                            00000440
29         INPUT STUID $ 1-7 NAME $ 8-27 SCIRS  31-32 SCITAKEN  33-34                00000450
30             GRADE $ 42-43 $ 47 (SCI-SCII)(31.) $ 132 TOTDAYSE 203.1;              00000460
31         DROP SCI-SCII;                                                            00000470
32         RENAME SCIRS=PRESCIRS;                                                    00000480
33                                                                                   00000490
34                                                                                   00000500
35        * DATA TAPd5;                                                              00000510
36        *   TAP FILE    COBOL COPY BOOK = TAPFL34;                                00000520
37        *   INFILE STEPFL VSAM;                                                   00000530
38        *   INFILE TAP21 RECFM=FB LRECL=700 BLKSIZE=3500;                         00000540
39        *   INPUT      STUID      $ 1-7                                          00000550
40                       STUNAME    $ 8-27                                         00000560
41                       LCC        $ 28-30                                        00000570
```

```
2        S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    14:11 FRIDAY, JUNE 20, 1986

42                          MAKEUPCJ    $ 32                                  00000580
43                          ADVISOR     $ 35-37                               00000590
44                          SEX         $ 38                                  00000600
45                          ETHNIC      $ 39                                  00000610
46                          SPED        $ 40                                  00000620
47                          LEP         $ 41                                  00000630
48                          GRADE       $ 42-43 .                             00000640
49                          LEVEL       $ 44-45                               00000650
50                          FORM        $ 46                                  00000660
51                      @@@ SCIENCRS      ZD2.                                00000670
52                          SCIENCGE      ZD3.1                               00000680
53                          SCIENCPC      ZD2.:                               00000690
54                                                                            00000700
55          *           RENAME SCIENCRS=PRESCIRS;                             00000710
56          *           RENAME SCIENCGE=PRESCIGE;                             00000720
57          *           RENAME SCIENCPC=PRESCIPC;                             00000730
58                                                                            00000740

NOTE: INFILE ITBS29 HAS THE FOLLOWING CHARACTERISTICS:
      BCB=(BLKSIZE=3600,LRECL=1300,RECFM=F)

NOTE: INVALID DATA FOR TOTBATGE IN LINE 32 182-184.    30:57

RULE:     1234567 101234567 201234567 3012345e7 401234567 501234567 601234567 701234567 801234567 901234567 00

32        0002922[redacted]  [redacted]  146    01335  00057XXXXXXXXXXXX
   101                                                          02601D6702601C7502901F81      00026030504020
   201    3050426003030404043006291204020201013211050104010603023I
   301
   401
   501
   601
   701                                                                  01E6901D7801F81
   801          3231321213132211131123231 3113321213213321122132223213231322133113123222323123311212112123
   901    2
  1001
  1101
  1201

  1301    3002941[redacted]  [redacted]  D131    00733  05117                  03608893040070.7303708887022070740230757
  ZONE    FFFFFFFCCCEDDCC444CDCEDC44CFFF4444FFFFF44FFFFF4444444444444444FFFFCFFFFFFFCFFFFFFFCFFFFFFFCFFFFFFFCF
  NUMR    3002941120443180030159916041310033007333005117000060000000000038082930400703730370828702207374023075I

  1401    903230737033137.7504007F8502e0617301d06A5803005H4607807F8610507F8207107C9207406C6307C8213138091316401
  ZONE    FFFFFFCFFFFFFFCFFFFFFFCFFFFFFFCFFFFFFFCFFFFFFFCFFFFFFFCFFFFFFFCFFFFFFFCFFFFCFFFFFFFFFFFFFFFF
  NUMR    702303727003107375040376d5026J6973013d5156033056d4937807668013507682071073820740e3630738213138091316401
  1501    307d2d30112333e3104123e4033034e40013300373e020202040e0130603052203020001000004010102040101010000100020I0
  1601    0000100300331G0010100020+2309030203+000e02e0310100000000020030000002010003100000000000003000101000100I
  1701    003233d2020202040313300003023000031503033103303317070500323002020000301000201070100002042020003005030
  1801    1010+0102010e4009060303013131000005330003063131010000023100002606800003020001030102060000020201010001
  1901    502d6300101313100000003000000000060002020100111d1003350204300+3e040301003029100739030130001000000000000

  2001    e08J940707771J8D8907E7707H8307E7407878078H88J7.7506C62051520771380778507E8506D66
  ZONE    FFFCFFFFCFFFFCFFFFCFFFFCFFFFCFFFFCFFFFCFFFFCFFFFCFFFFCFFFFCFFFFCFFFFCFFFFCFFFFCFFFFCFF4444444444444444444444444
  NUMR    00d49407277038489037577078d3075740727807dd07075063e2039520706d078850758506466000000000000000000000000I
  2101          2431343142334413242431341432234413212122331213143414134132341413432131342313432134213421
  2201            3521441325453253143521241451231553245123114231243142414321423434434313414111422314
```

```
1        S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    14:40 FRIDAY, JUNE 20, 1986

NOTE: THE JOB EV7SASMG HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (0198600101).

NOTE: CPU10   VERSION = FF  SERIAL = 013553  MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1                                                                                    00000110
2          * THIS PROGRAM MERGES THE FILES READ IN SA-MG0120201 TO CREATE A SCIENCE00000120
3            ROSE FILE FOR DISTRICTWIDE, GR=8 IN 84-85 AND GR=9 IN 85-86, ONLY     00000130
4            STUDENTS WITH VALID MATH AND VALID READING SCORES OF THE ROSE FILE;   00000140
5                                                                                  00000150
6          * WHEN USING THE ITBS, THE TOTAL BATTERY GRADE EQUIVALENT IS USED TO    00000160
7            PREDICT SCIENCE GRADE EQUIVALENT SCORES ON THE TAP.;                  00000170
8                                                                                  00000180
9          DATA RCSE09;                                                          00000190
10           SET RCSEMG;                                                         00000200
11           IF GRADE EQ '09';                                                   00000210
12           IF MVALID='1' AND MVALID='1';                                       00000220
13                                                                               00000230

NOTE: DATA SET USER010.RCSE09 HAS 3390 OBSERVATIONS AND 19 VARIABLES. 132 OBS/TRK.
NOTE: THE DATA STATEMENT USED 18.43 SECONDS AND 322K.

13         DATA ITBS08;                                                          00000230
14           SET ITBS;                                                           00000240
15           IF GRADE EQ '08';                                                   00000250
16                                                                               00000260

NOTE: DATA SET USER010.ITBS08 HAS 4066 OBSERVATIONS AND 6 VARIABLES. 140 OBS/TRK.
NOTE: THE DATA STATEMENT USED 34.96 SECONDS AND 306K.

16         DATA TAP09;                                                           00000260
17           SET TAP86;                                                          00000270
18           IF GRADE EQ '09';                                                   00000280
19                                                                               00000290

NOTE: DATA SET USER010.TAP09 HAS 4703 OBSERVATIONS AND 15 VARIABLES. 112 OBS/TRK.
NOTE: THE DATA STATEMENT USED 20.22 SECONDS AND 306K.

19         PROC SORT DATA=RCSE09;                                                00000290
20           BY STUID;                                                           00000300
21                                                                               00000310

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.RCSE09 HAS 3390 OBSERVATIONS AND 19 VARIABLES. 132 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 20.44 SECONDS AND 292K.

21         PROC SORT DATA=ITBS08;                                                00000310
22           BY STUID;                                                           00000320
23                                                                               00000330

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.ITBS08 HAS 4066 OBSERVATIONS AND 6 VARIABLES. 140 OBS/TRK.
```

```
2       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    14:40 FRIDAY, JUNE 20, 1986

NOTE: THE PROCEDURE SORT USED 23.12 SECONDS AND 292K.

23          PROC SORT DATA=TAP09;                                          00000330
24           BY STUID;                                                     00000340
25                                                                         00000350

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.TAP09 HAS 4703 OBSERVATIONS AND 15 VARIABLES. 112 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 22.21 SECONDS AND 292K.

25          DATA SCIHUSE;                                                  00000350
26           MERGE HOSE09 (IN=ONHOSE09) IT3508 TAP09;                      00000360
27            BY STUID;                                                    00000370
28            IF ONHOSE09;                                                 00000380

NOTE: DATA SET USER010.SCIHOSE HAS 3390 OBSERVATIONS AND 29 VARIABLES. 60 OBS/TRK.
NOTE: THE DATA STATEMENT USED 32.07 SECONDS AND 314K.
NOTE: SAS USED 322K MEMORY.

NOTE: SAS INSTITUTE INC.
      SAS CIRCLE
      PO BOX 8000
      CARY, N.C.  27511-8000
```

ATTACHMENT D-1b

REGRESSION ANALYSIS WITH OUTLIERS REMOVED

```
1       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    13:55 WEDNESDAY, JULY 2, 1986

NOTE: THE JOB EV7SASMG HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (019860001).

NOTE: CPUID   VERSION = FF  SERIAL = 013553  MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1          *    DELETE DATA=ROSEMG;                                          00000110
2          *    DELETE DATA=ITBS ITBS08;                                     00000120
3          *    DELETE DATA=TAP85 TAP86;                                     00000130
4           OPTION MISSING=.;                                                00000140
5          TITLE1 'AUSTIN INDEPENDENT SCHOOL DISTRICT';                      00000150
6          TITLE2 'DEPARTMENT OF MANAGEMENT INFORMATION';                    00000160
7          TITLE3 'OFFICE OF RESEARCH AND EVALUATION';                       00000170
8          TITLE4 'PROG:  SA-MG0120301';                                     00000180
9          TITLE5 'TAP85  TO TAP86:  SCIENCE RUSE ANALYSIS, RESIDUAL SCORES OVERALL00000190
10         , AND PLOTS';                                                     00000200
11                                                                           00000210
12          DATA TRTEST;                                                     00000220
13            SET SCIRUSE;                                                   00000230
14            IF AVALID EQ '1' AND RVALID EQ '1';                            00000240
15           IF LISTAT EQ ' ' THEN LISTAT=0;                                 00000250
16           GROUP1=0; GROUP2=0; GROUP3=0; GROUP4=0; GROUP5=0; GROUP6=0;     00000260
17           IF ETHNIC EQ '3' AND SEX EQ '1' THEN GROUP1=1;                  00000270
18           IF ETHNIC EQ '3' AND SEX EQ '3' THEN GROUP2=1;                  00000280
19           IF ETHNIC EQ '4' AND SEX EQ '1' THEN GROUP3=1;                  00000290
20           IF ETHNIC EQ '4' AND SEX EQ '3' THEN GROUP4=1;                  00000300
21           IF (ETHNIC EQ '1' OR ETHNIC EQ '2' OR ETHNIC EQ '5') AND SEX EQ '1'  00000310
22              THEN GROUP5=1;                                               00000320
23           IF (ETHNIC EQ '1' OR ETHNIC EQ '2' OR ETHNIC EQ '5') AND SEX EQ '3'  00000330
24              THEN GROUP6=1;                                               00000340
25           V1=0; V2=0; V3=0; V4=0; V5=0; V6=0; V7=0; V8=0; V9=0; V10=0; V11=0;  00000350
26           V12=0; V13=0; V14=0; V15=0; V16=0; V17=0; V18=0; V19=0;*V20=0;   00000360
27           V21=0; V22=0; V23=0; V24=0; V25=0; V26=0;                        00000370
28           V1=SCIENCE;                                                     00000380
29           V2=TOTBATGE;                                                    00000390
30           IF GROUP1=1 THEN V3=TOTBATGE;                                   00000400
31           IF GROUP2=1 THEN V4=TOTBATGE;                                   00000410
32           IF GROUP3=1 THEN V5=TOTBATGE;                                   00000420
33           IF GROUP4=1 THEN V6=TOTBATGE;                                   00000430
34           IF GROUP5=1 THEN V7=TOTBATGE;                                   00000440
35           IF GROUP6=1 THEN V8=TOTBATGE;                                   00000450
36           V9=V2**2;                                                       00000460
37           V10=V3**2;                                                      00000470
38           V11=V4**2;                                                      00000480
39           V12=V5**2;                                                      00000490
40           V13=V6**2;                                                      00000500
41           V14=V7**2;                                                      00000510
42           V15=V8**2;                                                      00000520
43           V16=LISTAT;                                                     00000530
44           IF DESEGSTA EQ '3' OR DESEGSTA EQ '4' THEN V17=1;               00000540
45           IF DESEGSTA EQ '2' OR DESEGSTA EQ '3' OR (DESEGSTA EQ '5' AND   00000550
46             (LOC EQ '002' OR LOC EQ '003' OR LOC EQ '004' OR LOC EQ '005'  00000560
47             OR LOC EQ '006' OR LOC EQ '007' OR LOC EQ '008' OR LOC EQ '009'  00000570
48             OR LOC EQ '010')) THEN V18=1;                                 00000580
49           IF DESEGSTA EQ '5' THEN V19=1;                                  00000590
50         * V20=PTR;                                                       00000600
51           V21=GROUP1;                                                     00000610
```

```
2       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASHG                    13:55 WEDNESDAY, JULY 2, 198

52            V22=GROUP2;                                                          00000620
53            V23=GROUP3;                                                          00000630
54            V24=GROUP4;                                                          00000640
55            V25=GROUP5;                                                          00000650
56            V26=GROUP6;                                                          00000660
57                                                                                 00000670
58                                                                                 00000680
59                                                                                 00000690

NOTE: CHARACTER VALUES HAVE BEEN CONVERTED TO NUMERIC
      VALUES AT THE PLACES GIVEN BY: (LINE):(COLUMN).

      43:7

NOTE: NUMERIC VALUES HAVE BEEN CONVERTED TO CHARACTER
      VALUES AT THE PLACES GIVEN BY: (LINE):(COLUMN).

      15:31

NOTE: MISSING VALUES WERE GENERATED AS A RESULT OF PERFORMING
      AN OPERATION ON MISSING VALUES.
      EACH PLACE IS GIVEN BY: (NUMBER OF TIMES) AT (LINE):(COLUMN).

      8 AT 36:6   1 AT 37:7   1 AT 38:7   2 AT 39:7   1 AT 40:7   2 AT 41:7   1 AT 42:7

NOTE: DATA SET USER010.TRTEST HAS 2939 OBSERVATIONS AND 60 VARIABLES. 20 OBS/TRK.
NOTE: THE DATA STATEMENT USED 50.78 SECONDS AND 330K.

59          PROC GLM;                                                              00000690
60            MODEL SCIENCGE=V3-V8 V10-V19 V21-V25;                                00000700
61            OUTPUT OUT=TR2 R=SRESID;                                             00000710
62                                                                                 00000720
63          * ELIMINATE OUTLIERS:  + OR - 3.0 STANDARD DEVIATIONS ON SRESID;       00000730

NOTE: DATA SET USER010.TR2 HAS 2939 OBSERVATIONS AND 61 VARIABLES. 20 OBS/TRK.
NOTE: THE PROCEDURE GLM USED 110.69 SECONDS AND 698K AND PRINTED PAGES 1 TO 3.

64          DATA CLEANUP; SET TR2;                                                 00000740
65            IF SRESID LE -5.86740 THEN DELETE;                                   00000750
66            IF SRESID GT 5.86740 THEN DELETE;                                    00000760

NOTE: DATA SET USER010.CLEANUP HAS 2862 OBSERVATIONS AND 61 VARIABLES. 20 OBS/TRK.
NOTE: THE DATA STATEMENT USED 37.11 SECONDS AND 314K.

67          PROC DELETE DATA=TR2;                                                  00000770
68                                                                                 00000780

NOTE: THE PROCEDURE DELETE USED 0.96 SECONDS AND 284K.

69          PROC UNIVARIATE DATA=CLEANUP;                                          00000790
70            VAR SRESID;                                                          00000800
71            OUTPUT OUT=NEW1 MEAN=XBAR STD=SDDIS N=K;                             00000810
72                                                                                 00000820

NOTE: DATA SET USER010.NEW1 HAS 1 OBSERVATIONS AND 3 VARIABLES. 284 OBS/TRK.
NOTE: THE PROCEDURE UNIVARIATE USED 13.56 SECONDS AND 426K AND PRINTED PAGE 4.

72            DATA NEW1; SET NEW1;                                                 00000820
```

```
3       S A S   L O G   VSE SAS e2.4        VSE 3.1 JOB EV7SAS4G                    13:55 WEDNESDAY, JULY 2, 19 85.41

73          SQRTDIS=0;                                                              00000830
74          SQRTDIS=SQRT(K);                                                        00000840
75          TITLE 'UNIVARIATE STATISTICS FOR SCIENCE SCORES--DISTRICTWIDE';         00000850
76                                                                                  00000860

NOTE: DATA SET USER010.NEW1 HAS 1 OBSERVATIONS AND 4 VARIABLES. 222 OBS/TRK.
NOTE: THE DATA STATEMENT USED 2.92 SECONDS AND 306K.

77          PROC UNIVARIATE DATA=CLEANUP;                                           00000870
78            VAR V2;                                                               00000880
79            TITLE 'UNIVARIATE STATISTICS FOR TOTAL BATTERY GE--DISTRICTWIDE';     00000890
80                                                                                  00000900
81                                                                                  00000910

NOTE: THE PROCEDURE UNIVARIATE USED 10.17 SECONDS AND 382K AND PRINTED PAGE 5.

82          PROC PLOT DATA=CLEANUP;                                                 00000920
83            TITLE 'PLOT OF TAP86 SCIENCE GE RESIDUALS & ITBS85 TOTBATGE SCORES';  00000930
84            PLOT SRESID*TOTBATGE/VREF=0;                                          00000940
85                                                                                  00000950
86                                                                                  00000960

NOTE: THE PROCEDURE PLOT USED 17.38 SECONDS AND 376K AND PRINTED PAGE 6.

86          PROC DELETE DATA=NEW1 TRTEST;                                           00000960

NOTE: THE PROCEDURE DELETE USED 1.73 SECONDS AND 284K.
NOTE: SAS USED 696K MEMORY.

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Attachment D-1b
(Page 3 of 3)

ATTACHMENT D-1c

COMPARISON OF SCIENCE ACADEMY TO DISTRICT

```
1       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    14:13 WEDNESDAY, JULY 2, 19

NOTE: THE JOB EV7SASMG HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (01986001).

NOTE: CPUID   VERSION = FF  SERIAL = 013553  MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1                                                                          00000120
2          OPTIONS ERRORS = 0;                                             00000130
3                                                                          00000140
4           TITLE1 'AUSTIN INDEPENDENT SCHOOL DISTRICT';                   00000150
5           TITLE2 'DEPARTMENT OF MANAGEMENT INFORMATION';                 00000160
6           TITLE3 'OFFICE OF RESEARCH AND EVALUATION';                    00000170
7           TITLE4 'SCIENCE ROSE ANALYSIS:  SCIENCE ACADEMY 9TH GRADERS';  00000180
8                                                                          00000190
9                                                                          00000200
10          DATA CLEANUP;                                                  00000210
11             SET CLEANUP;                                                00000220
12                                                                         00000230
13                                                                         00000240

NOTE: DATA SET USER010.CLEANUP HAS 2862 OBSERVATIONS AND 61 VARIABLES. 20 OBS/TRK.
NOTE: THE DATA STATEMENT USED 30.84 SECONDS AND 330K.

14          DATA SCIACAD;                                                  00000240
15           INPUT STUID $ 1-7 STATUS 12  GRADE $ 9-10 GPA 40-45;          00000250
16           IF STATUS=1;                                                  00000260
17           IF GRADE EQ '09';                                             00000270
18          CARDS;                                                         00000280

NOTE: DATA SET USER010.SCIACAD HAS 115 OBSERVATIONS AND 4 VARIABLES. 274 OBS/TRK.
NOTE: THE DATA STATEMENT USED 2.35 SECONDS AND 306K.

203         ;                                                              00000300
204          PROC SORT;                                                    00000310
205           BY STUID;                                                    00000320
206                                                                        00000330
207                                                                        00000340

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.SCIACAD HAS 115 OBSERVATIONS AND 4 VARIABLES. 274 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 0.76 SECONDS AND 292K.

207          PROC SORT DATA=CLEANUP;                                       00000340
208           BY STUID;                                                    00000350
209                                                                        00000360
210                                                                        00000370

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.CLEANUP HAS 2862 OBSERVATIONS AND 61 VARIABLES. 20 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 35.29 SECONDS AND 300K.

210         DATA ROSESCAC;                                                 00000370
211          MERGE CLEANUP (IN=UNCLEAN) SCIACAD (IN=ONSCI);                00000380
```

85.41

Attachment D-1c
(Page 1 of 3)

```
2       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    14:13 WEDNESDAY, JULY 2, 19
212           BY STUID;                                                          00000390
213           IF UNCLEAN; IF ONSCI;                                              00000400
214                                                                              00000410
215                                                                              00000420

NOTE: DATA SET USER010.ROSESCAC HAS 91 OBSERVATIONS AND 63 VARIABLES. 18 OBS/TRK.
NOTE: THE DATA STATEMENT USED 11.99 SECONDS AND 314K.

215          DATA SELECT;                                                       00000420
216           SET ROSESCAC;                                                     00000430
217           KEEP STUID STUNAME PRELOC PREGRADE PRELEVEL ETHNIC SEX DESEGSTA LISTAT00000440
218                PRESCIRS SCITAKEN TOTBATGE SCIENCRS SCIENCGE SCIENCPC SRESID;  00000450
219                                                                              00000460

NOTE: DATA SET USER010.SELECT HAS 91 OBSERVATIONS AND 16 VARIABLES. 80 OBS/TRK.
NOTE: THE DATA STATEMENT USED 3.33 SECONDS AND 314K.

219           PROC PRINT DATA=SELECT;                                            00000460
220                                                                              00000470

NOTE: THE PROCEDURE PRINT USED 3.00 SECONDS AND 350K AND PRINTED PAGES 1 TO 2.

220           PROC DELETE DATA=SELECT;                                           00000470
221                                                                              00000480
222                                                                              00000490

NOTE: THE PROCEDURE DELETE USED 1.05 SECONDS AND 284K.

222          PROC UNIVARIATE DATA=ROSESCAC; /*FOR FINAL Z SCORES */             00000490
223           TITLE 'ROSE ANALYSIS: SCIENCE GE DISCREPANCY SCORES, SCIENCE ACADEMY';00000500
224           VAR SRESID;                                                        00000510
225           OUTPUT OUT=TR8 MEAN=XBARS N=NS MODE=MODE MEDIAN=MEDIAN Q1=Q1       00000520
226                          Q3=Q3 P10=P10 P90=P90 MAX=MAX MIN=MIN;              00000530
227                                                                              00000540

NOTE: DATA SET USER010.TR8 HAS 1 OBSERVATIONS AND 10 VARIABLES. 94 OBS/TRK.
NOTE: THE PROCEDURE UNIVARIATE USED 4.27 SECONDS AND 386K AND PRINTED PAGE 3.

227           DATA SCORES;                                                       00000540
228           SET ROSESCAC TR8;                                                  00000550
229                                                                              00000560

NOTE: DATA SET USER010.SCORES HAS 92 OBSERVATIONS AND 73 VARIABLES. 16 OBS/TRK.
NOTE: THE DATA STATEMENT USED 5.71 SECONDS AND 314K.

229           PROC CHART DATA=SCORES;                                            00000560
230           VBAR SRESID/AXIS=0 TO 15 BY 1 MIDPOINTS=-5.90000 TO 5.90000 BY .3; 00000570
231           LABEL SRESID='SCIENCE RESIDUAL SCORES';                            00000580
232           TITLE 'CHART OF FREQUENCY OF SCIENCE RESIDUAL SCORES FOR SCIENCE ACADE00000590
233         MY STUDENTS IN INTERVALS OF 1/3 OF A STANDARD DEVIATION';            00000600
234                                                                              00000610
235                                                                              00000620

NOTE: THE PROCEDURE CHART USED 3.84 SECONDS AND 490K AND PRINTED PAGE 4.

235          DATA TR9;                                                          00000620
236           SET TR8;                                                          00000630
237           SDRINS=0;                  /* CHANGE THESE SD'S EACH YEAR */      00000640
```

```
3       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    14:13 WEDNESDAY, JULY 2, 1

238           SQRTNS=SQRT(NS);                                                      00000650
239              GRADE='09'; /* INSERT THE GRADE YOU ARE RUNNING */                00000660
240                          /* DO NOT MIX GRADE LEVELS */                         00000670
241                          /* USE ONE GRADE LEVEL AT A TIME */                   00000680
242           SZ=0;          SDSCI=0;                                              00000690
243            IF GRADE='09' THEN DO; SDSCI=1.87012;          END;                00000700
244            IF GRADE='10' THEN DO; SDSCI=1.55865;          END;                00000710
245         *     GRADE='11' THEN DO; * SDSCI=            ; * END;                00000720
246         *     GRADE='12' THEN DO; * SDSCI=            ; * END;                00000730
247                                                                               00000740
248           SZ=XBARS/(SDSCI/SQRTNS);                                            00000750
249                                                                               00000760

NOTE: DATA SET USER010.TR9 HAS 1 OBSERVATIONS AND 14 VARIABLES. 72 OBS/TRK.
NOTE: THE DATA STATEMENT USED 3.88 SECONDS AND 306K.

249           PROC PRINT DATA=TR9;                                                00000760
250             VAR SZ XBARS SDSCI SQRTNS;                                        00000770
251             LABEL SZ='SCIENCE Z' XBARS='SCIACD MEAN'                          00000780
252                   SDSCI='DISTRICT STD DEV' SQRTNS='SQUARE ROOT OF SCIACD N';  00000790
253             TITLE 'Z SCORE COMPARING SCIENCE ACADEMY TO DISTRICTWIDE, GRADE 9'; 00000800
254                                                                               00000810
255                                                                               00000820

NOTE: THE PROCEDURE PRINT USED 2.33 SECONDS AND 340K AND PRINTED PAGE 5.

255           PROC UNIVARIATE DATA=ROSESCAC;                                      00000820
256             VAR TOTBATGE SCIENCGE SCIENCRS GPA;                               00000830
257             LABEL TOTBATGE='TOTAL BATTERY GRADE EQUIV.' GPA='GRADE PT. AVG.'  00000840
258                   SCIENCGE='SCIENCE GRADE EQUIV.' SCIENCRS='SCIENCE RAW SCORE'; 00000850
259             TITLE 'STATISTICS FOR SELECTED VARIABLES';                        00000860
260                                                                               00000870

NOTE: THE PROCEDURE UNIVARIATE USED 3.09 SECONDS AND 382K AND PRINTED PAGES 6 TO 9.

261           PROC CORR DATA=ROSESCAC;                                            00000880
262             VAR SCIENCGE SCIENCRS SRESID;                                     00000890
263             WITH GPA;                                                         00000900
264             TITLE 'CORRELATIONS OF GPA WITH SCIENCE GR\ EQUIV., RAW SCORE, AND RES00000910
265           IDUALS';                                                            00000920
266                                                                               00000930

NOTE: THE PROCEDURE CORR USED 3.02 SECONDS AND 324K AND PRINTED PAGE 10.

267           PROC DELETE DATA=SCIACAD ROSESCAC TR8 SCORES TR9;                   00000940
268           *    DELETE DATA=CLEANUP CLEAN10;                                   00000950

NOTE: THE PROCEDURE DELETE USED 4.33 SECONDS AND 284K.
NOTE: SAS USED 490K MEMORY.

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ATTACHMENT D-2

SAS PROGRAM FOR MATH AND READING ROSE ANALYSES

```
1          S A S   L O G   VSE SAS 82.4          VSE 3.1 JOB EV7SASMG                    8:48 MONDAY, JULY 7, 1986

NOTE: THE JOB EV7SASMG HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (019860001).

NOTE: CPUID    VERSION = FF  SERIAL = 013553  MODEL = 4341

NOTE: NO OPTIONS SPECIFIED.

1                                                                                          00000120
2               OPTIONS ERRORS = 0;                                                        00000130
3             * OPTIONS OBS=0 NOREPLACE;                                                   00000140
4             *    DELETE DATA=MGROSE;                                                   00000150
5             *    DELETE DATA=SCIROSE;                                                  00000160
6             *    DELETE DATA=SCIACAD;                                                  00000170
7                                                                                          00000180
8           DATA MGROSE;                                                                   00000190
9             INFILE ROSE22 RECFM=F LRECL=100 BLKSIZE=100;                                 00000200
10            INPUT          STUID       $ 1-7                                           00000210
11                           STUNAME     $ 8-27                                          00000220
12                           PRELOC      $ 28-30                                         00000230
13                           PREADV      $ 31-33                                         00000240
14                           PREETH      $ 34                                            00000250
15                           PREGRADE    $ 35-36                                         00000260
16                           PRELEVEL    $ 37-38                                         00000270
17                           PREFORM     $ 39                                            00000280
18                           LOC         $ 40-42                                         00000290
19                           ADVISOR     $ 43-45                                         00000300
20                           ETHNIC      $ 46                                            00000310
21                           GRADE       $ 47-48                                         00000320
22                           LEVEL       $ 49-50                                         00000330
23                           FORM        $ 51                                            00000340
24                           PRERSC      $ 52                                            00000350
25                           PREMSC      $ 53                                            00000360
26                           POSTRSC     $ 54                                            00000370
27                           POSTMSC     $ 55                                            00000380
28                    @56    PRERGE        ZD4.1                                         00000390
29                    @60    PREMGE        ZD4.1                                         00000400
30                    @64    POSTRGE       ZD4.1                                         00000410
31                    @68    POSTMGE       ZD4.1                                         00000420
32                           SEX         $ 72                                            00000430
33                           DESEGSTA    $ 73                                            00000440
34                           LISTAT      $ 74                                            00000450
35                           PTR           75-78.1                                       00000460
36                           RVALID      $ 79                                            00000470
37                           MVALID      $ 80                                            00000480
38                           RDISCREP      81-90.4                                       00000490
39                           MDISCREP      91-100.4;                                     00000500
40                                                                                         00000501
41              IF GRADE='09' OR GRADE='10';                                               00000502
42              IF RVALID='1';  /*SELECT ON RVALID OR MVALID SEPARATELY FOR READING        00000510
43                                 OR MATH ANALYSIS*/                                      00000520
44              IF MVALID='1';                                                             00000530
45                                                                                         00000540
46          TITLE1 'AUSTIN INDEPENDENT SCHOOL DISTRICT';                                   00000550
47          TITLE2 'DEPARTMENT OF MANAGEMENT INFORMATION';                                 00000560
48          TITLE3 'OFFICE OF RESEARCH AND EVALUATION';                                    00000570
49          TITLE4 'PROJ:  SA-MG012 01 01';                                                00000580
50                                                                                         00000590
```

```
2       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    8:48 MONDAY, JULY 7, 1986

NOTE: INFILE RDSE22 HAS THE FOLLOWING CHARACTERISTICS:
      RCB=(BLKSIZE=100,LRECL=100,RECFM=F)

NOTE: 11317 LINES WERE READ FROM INFILE RDSE22.
NOTE: DATA SET USER010.MGRDSE HAS 6115 OBSERVATIONS AND 30 VARIABLES. 66 OBS/TRK.
NOTE: THE DATA STATEMENT USED 224.23 SECONDS AND 330K.

51          DATA SCIACAD;                                                  00000600
52           INPUT STUID $ 1-7 STATUS 12  GRADE $ 9-10;                    00000610
53           IF STATUS=1;                                                  00000620
54           IF GRADE ='09';                                               00000630
55          CARDS;                                                         00000640

NOTE: DATA SET USER010.SCIACAD HAS 115 OBSERVATIONS AND 3 VARIABLES. 380 OBS/TRK.
NOTE: THE DATA STATEMENT USED 4.18 SECONDS AND 306K.

241         ;                                                              00000660
242         PROC SORT DATA=SCIACAD;                                        00000670
243          BY STUID;                                                     00000680
244                                                                        00000690

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.SCIACAD HAS 115 OBSERVATIONS AND 3 VARIABLES. 380 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 11.62 SECONDS AND 292K.

244         PROC SORT DATA=MGRDSE;                                         00000690
245          BY STUID;                                                     00000700
246                                                                        00000710

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.MGRDSE HAS 6115 OBSERVATIONS AND 30 VARIABLES. 66 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 58.61 SECONDS AND 292K.

246         DATA RMRDSE;                                                   00000710
247          MERGE MGRDSE (IN=INRDSE) SCIACAD(IN=INSCI);                   00000720
248          BY STUID;                                                     00000730
249          IF INRDSE; IF INSCI;                                          00000740
250                                                                        00000750
251                                                                        00000760

NOTE: DATA SET USER010.RMRDSE HAS 93 OBSERVATIONS AND 31 VARIABLES. 62 OBS/TRK.
NOTE: THE DATA STATEMENT USED 16.66 SECONDS AND 314K.

251         PROC UNIVARIATE DATA=RMRDSE;   /*FOR FINAL Z SCORES */       00000760
252          VAR MDISCREP RDISCREP PRERGE PRENGE POSTRGE POSTNGE;          00000770
253          LABEL MDISCREP='MATH RESIDUAL' RDISCREP='READING RESIDUAL'    00000780
254                PRERGE='PRE READING GE' PRENGE='PRE MATH GE'            00000790
255                POSTRGE='POST READING GE' POSTNGE='POST MATH GE';       00000800
256          TITLE 'SCIENCE ACADEMY GRADE 09 STATISTICS';                  00000810
257          OUTPUT OUT=TRB MEAN=XBARM XBARR N=NM NR;                      00000820
258                                                                        00000830
```

```
3       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    8:48 MONDAY, JULY 7, 1986

NOTE: DATA SET USER010.TR8 HAS 1 OBSERVATIONS AND 4 VARIABLES. 222 OBS/TRK.
NOTE: THE PROCEDURE UNIVARIATE USED 4.02 SECONDS AND 390K AND PRINTED PAGES 1 TO 6.

258         DATA TR9;                                                          00000830
259          SET TR8;                                                          00000840
260          SQRTNM=0; SQRTNR=0;       /* CHANGE THESE SD'S EACH YEAR */       00000850
261          SQRTNM=SQRT(NM);                                                  00000860
262          SQRTNR=SQRT(NR);                                                  00000870
263             GRADE='09'; /* INSERT THE GRADE YOU ARE RUNNING */             00000880
264                         /* DO NOT MIX GRADE LEVELS */                       00000890
265                         /* USE ONE GRADE LEVEL AT A TIME */                 00000900
266         MZ=0;  RZ=0; SDMATH=0;  SDREAD=0;                                  00000910
267         LABEL MZ='MATH Z SCORE' RZ='READING Z SCORE';                      00000920
268                                                                            00000930
269          IF GRADE='09' THEN DO; SDREAD=2.02118874; SDMATH=1.63235855; END; 00000940
270          IF GRADE='10' THEN DO; SDREAD=2.12806034; SDMATH=1.62718582; END; 00000950
271          IF GRADE='11' THEN DO; SDREAD=2.37098885; SDMATH=1.61265945; END; 00000960
272          IF GRADE='12' THEN DO; SDREAD=2.43090248; SDMATH=1.95871258; END; 00000970
273                                                                            00000980
274         MZ=XBARM/(SDMATH /SQRTNM);  RZ=XBARR/(SDREAD /SQRTNR);             00000990
275                                                                            00001000

NOTE: DATA SET USER010.TR9 HAS 1 OBSERVATIONS AND 11 VARIABLES. 92 OBS/TRK.
NOTE: THE DATA STATEMENT USED 2.67 SECONDS AND 306K.

275         PROC PRINT DATA=TR9;       /*END OF Z SCORE */                    00001000
276         VAR MZ XBARM SDMATH SQRTNM RZ XBARR SDREAD SQRTNR;                 00001010
277         TITLE 'Z-SCORES FOR MATH AND READING, SCIACD GRADE 09 VS DISTRICT'; 00001020

NOTE: THE PROCEDURE PRINT USED 1.84 SECONDS AND 340K AND PRINTED PAGE 7.

278         PROC DELETE DATA=SCIACAD MGRUSE RMKUSE CLEAN10 ROSESCAC CLEANUP;   00001030

NOTE: THE PROCEDURE DELETE USED 8.40 SECONDS AND 284K.
NOTE: SAS USED 390K MEMORY.

NOTE: SAS INSTITUTE INC.
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```

Magnet Schools Assistance Program

Appendix E

IMPACT OF SCIENCE ACADEMY ON OTHER SCHOOLS

TABLE OF CONTENTS

Magnet Schools Assistance Program

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FIGURE E-1:	Impact of Science Academy on Honors Course Enrollment	102
ATTACHMENT E-1:	SAS Program Calculating Honors Course Enrollment. . .	107

IMPACT OF SCIENCE ACADEMY ON OTHER SCHOOLS

Purpose

It was possible that because the Science Academy attracted students from all over the District without being limited by the District's transfer policy, that eventually there might be a negative impact on enrollment in courses at the students' home schools. Because there was a concern that the Science Academy would attract the brightest students, thereby impacting enrollment in honors courses at the sending campuses, the following evaluation question was posed:

Evaluation Question D3-7. How did the Science Academy affect enrollment in courses at the sending campuses?

Although the majority of the 1985-86 Science Academy enrollment consisted of ninth graders who came directly from a junior high school, scheduling at their regularly assigned high schools was done in anticipation of losing those who were accepted into the Science Academy. The purpose of Appendix E is to compare actual enrollment in honors courses at each high school with projected enrollment had the Science Academy not existed and students took the same courses if they attended their home school.

Procedure

Data Collection

With the assistance of a District Priorities programmer/analyst, the magnet evaluator wrote SAS computer programs to obtain the following:

- The number of students at each high school campus who took at least one honors course,
- The number of students enrolled in each honors course by period in order to know the number of sections scheduled and average class size (pupil to teacher ratio (PTR)),
- The number of Science Academy students enrolled in each honors course, and
- The enrollment of Science Academy students in honors courses by their home school assignment (prior to transferring to LBJ).

Attachment E-1 contains a sample of the SAS programs used to obtain these frequencies. All data were collected in June after the end of the school year in order to have the most up-to-date data.

Analyses

Frequency counts were obtained for the above information, which were then used to construct the summary tables in Figure E-1. Analyses were done in June and July using the second semester Student Grade Report file; therefore, only second semester sections of the courses were included. However, the assumption was made that students also were enrolled in the first-semester section of the honors course. First semester enrollments were not used because by the end of the year some Science Academy students had dropped and returned to their home school. Duplicate counts of students could be avoided through these procedures and assumptions.

In determining whether or not a school was impacted by the loss of the Science Academy transfer students, the average class size for each course was determined by the total enrollment divided by the number of sections. Although some sections may have had more than 30 students enrolled, it was decided that a class size of thirty was the overall average acceptable class size. Any greater enrollment may have prompted the administration to consider adding a section. Therefore, although some sections had as many as 35 students enrolled, for evaluation purposes, a course was considered to be impacted if the projected enrollment increased the average class size above 30 students.

A course may or may not have been added to the offerings if at least one student expressed interest in taking the course. Whether or not the administration would have actually offered additional courses would have depended on enrollment and the availability of qualified teachers. Nevertheless, if a Science Academy student took a course at LBJ that was not offered at the home school, it was considered to be a course that was impacted by the loss of the Science Academy transfer students.

Results

Because four courses were designated as "Science Academy courses" as additional time to accompany regularly offered honors courses that were not offered at any other school (nor would they be if the Academy did not exist), those courses and the students enrolled in them were not included in determining impact on home schools.

The results are shown in Figure E-1. Not all honors courses offered at each school are listed. Rather, only those courses in which Science Academy students who would have attended their home school were enrolled are shown, since those were the only courses which could have been impacted. This assumes that students would have enrolled in the same courses if they did not attend the Science Academy, with the exception of the extra hour spent in "Science Academy courses."

For the summary statistics at the bottom of each table, unduplicated and duplicated student counts are based on all courses offered at that school. The number of Science Academy transfers out of the school are added back in for the unduplicated count of students who took at least one honors course. The duplicated count with Science Academy students added in represents the projected total enrollment in all honors courses offered at the school. However, the enrollment in "Science Academy honors courses" (the four courses previously mentioned) was not included in any tabulation, so as to make the schools comparable. The percent change represented by the additions is shown. Change is shown as an increase at LBJ with the transfer students and as a loss at the eight sending campuses.

From Figure E-1, the results indicated the following conclusions about how the Science Academy affected the enrollment in honors courses at the sending campuses:

- The number of students enrolled in honors courses at LBJ High School increased by 55% because of Science Academy transfer students, while the average loss at the other schools was only 3.2% with the largest decrease 5.8%.

- Total enrollment in all honors courses at LBJ increased just over 70%, while the average loss of enrollment at other schools was 4.7%, with 9.3% the greatest loss.

- Johnston High School was the sending campus which experienced the greatest impact as a result of students transferring to the Science Academy. Twenty-nine of the Science Academy students who stayed in the Academy the entire year transferred out of Johnston.

- Of the 343 students at LBJ enrolled in honors courses, 185* (54%) were Science Academy students. **Academy students represented 84% of all ninth-grade and 66% of all tenth-grade students taking honors courses.** The ten eleventh-grade Academy students represented 15% of all juniors in honors courses.

  *At one time, 185 Science Academy students were enrolled, although 165 remained the entire year. The 343 figure includes those who eventually dropped out of the Academy.

Discussion

The information presented here suggested that the Science Academy has promoted honors courses and increased enrollment in such courses at LBJ High School. That Science Academy students represent such a large proportion of LBJ students in honors courses is significant for its first year of implementation.

Contrary to some expectations, the Science Academy has not had a significant negative impact on other schools, with the possible exception of Johnston High School. However, in future years, as the Science Academy grows toward full capacity (800 students), there may be an increasing impact on the other schools. It is suggested that this information should be examined longitudinally each year that the Science Academy is evaluated.

One caution should be kept in mind while interpreting these data. Enrollment in honors courses is voluntary and is not based on the achievement qualifications of the student. Because the Science Academy offered an intensive program in math and science, students who may not have otherwise enrolled in honors courses did so to complement their Science Academy courses in ways that regular courses could not. Therefore, enrollment estimates (with transfer students included) at the sending campuses may be spuriously high.

FIGURE E-1

IMPACT OF SCIENCE ACADEMY ON HONORS COURSE ENROLLMENT

School: Austin High School, 002

COURSE NAME	NUMBER	ACTUAL ENROLLMENT TOTAL	SECTIONS	PTR	SCI ACD TRANS	IMPACT?	NEW PTR
English II	1012H	110	4	28:1	6	no	29:1
English IV	1022H	87	3	29:1	1	no	29:1
Geometry II	3412H	14	1	14:1	1	no	15:1
Phy Sci II	4015H	0	0	n/a	4	yes	+1 course
Biology I	4122H	95	5	19:1	2	no	19:1
Chemistry II	4322H	41	2	21:1	5	no	23:1
World Geog II	4513H	50	2	25:1	1	no	25:1
World HistII	4613H	25	1	25:1	1	no	26:1

TOTAL COUNTS:	Without Sci Acd:	With Sci Acd:	Percent Change:
Unduplicated:	514 students	521	-1.4%
Duplicated:	988 students	1009	-2.1%
Courses:	23	24	

School: Johnston High School, 003

COURSE NAME	NUMBER	ACTUAL ENROLLMENT TOTAL	SECTIONS	PTR	SCI ACD TRANS	IMPACT?	NEW PTR
English II	1012H	101	4	25:1	17	no	30:1
English IV	1022H	76	3	25:1	6	no	27:1
Algebra IV	3322H	57	2	29:1	10	yes	34:1
Geometry II	3412H	22	1	22:1	10	yes	32:1
Trigonometry	3621H	0	0	n/a	6	yes	+1 course
Elem. Analysis	3624H	79	3	26:1	1	no	27:1
Phy Sci II	4015H	0	0	n/a	7	yes	+1 course
Biology I	4122H	89	4	22:1	11	no	25:1
Physiology II	4126H	29	2	15:1	1	no	15:1
Chemistry II	4322H	66	3	22:1	3	no	23:1
Physics II	4423H	20	1	20:1	5	no	25:1
World Geog. II	4513H	84	3	28:1	12	yes	32:1
World Hist. II	4613H	52	2	26:1	1	no	27:1
Amer. Hist. II	4732H	52	2	26:1	1	no	27:1

TOTAL COUNTS:	Without Sci Acd:	With Sci Acd:	Percent Change:
Unduplicated:	497 students	526	-5.8%
Duplicated:	973 students	1064	-9.3%
Courses:	26	28	

Figure E-1. IMPACT OF SCIENCE ACADEMY ON HONORS COURSE ENROLLMENT. Note: Impact is indicated if additional courses or sections would be required (if new ptr > 30:1) with Science Academy students at home school. (Page 1 of 5)

School: Lanier High School, 004

COURSE NAME	NUMBER	ACTUAL ENROLLMENT TOTAL	SECTIONS	PTR	SCI ACD TRANS	IMPACT?	NEW PTR
English II	1012H	70	3	23:1	14	no	28:1
English IV	1022H	68	3	23:1	4	no	24:1
English VI	1032H	68	3	23:1	1	no	23:1
Algebra IV	3322H	18	1	18:1	3	no	21:1
Geometry II	3412H	32	1	32:1	6	yes	38:1
Trigonometry	3621H	0	0	n/a	2	yes +1 course	
Elem. Analysis	3624H	40	2	20:1	1	no	21:1
Phy Sci II	4015H	0	0	n/a	5	yes +1 course	
Biology I	4122H	79	4	20:1	12	no	23:1
Chemistry II	4322H	35	2	18:1	3	no	19:1
Physics II	4423H	36	2	18:1	1	no	18:1
World Geog. II	4513H	45	2	18:1	9	no	27:1
World Hist. II	4613H	35	2	18:1	1	no	18:1
Government I	4841H	0	0	n/a	1	yes +1 course	

TOTAL COUNTS:	Without Sci Acd:	With Sci Acd:	Percent Change:
Unduplicated:	367 students	388	-5.7%
Duplicated:	734 students	797	-8.6%
Courses:	24	27	

School: McCallum High School, 005

COURSE NAME	NUMBER	ACTUAL ENROLLMENT TOTAL	SECTIONS	PTR	SCI ACD TRANS	IMPACT?	NEW PTR
English II	1012H	89	4	22:1	8	no	24:1
English IV	1022H	78	3	26:1	1	no	26:1
Algebra IV	3322H	37	2	19:1	1	no	19:1
Geometry II	3412H	32	2	16:1	2	no	17:1
Phy Sci II	4015H	0	0	n/a	2	yes +1 course	
Biology I	4122H	79	3	26:1	8	no	29:1
Physics II	4423H	38	2	19:1	1	no	20:1
World Geog. II	4513H	52	2	26:1	1	no	27:1
World Hist. II	4613H	78	3	26:1	2	no	27:1

TOTAL COUNTS:	Without Sci Acd:	With Sci Acd:	Percent Change:
Unduplicated:	469 students	479	-2.1%
Duplicated:	1071 students	1097	-2.4%
Courses:	30	31	

Figure E-1. (Continued, Page 2 of 5)
Note: Impact is indicated if additional courses or sections would be required (if new ptr > 30:1) with Science Academy students at home school.

School: Reagan High School, 006

COURSE NAME	NUMBER	ACTUAL ENROLLMENT TOTAL	SECTIONS	PTR	SCI ACD TRANS	IMPACT?	NEW PTR
English II	1012H	65	2	32:1	10	yes	38:1
English IV	1022H	46	2	23:1	2	no	24:1
Algebra IV	3322H	14	1	14:1	1	no	15:1
Geometry II	3412H	25	1	25:1	3	no	28:1
Phy Sci II	4015H	0	0	n/a	10	yes	+1 course
Biology I	4122H	104	5	26:1	6	no	22:1
Chemistry II	4322H	56	3	19:1	3	no	20:1
World Geog. II	4513H	43	2	22:1	9	no	26:1
World Hist. II	4613H	54	2	27:1	2	no	28:1

TOTAL COUNTS:	Without Sci Acd:	With Sci Acd:	Percent Change:
Unduplicated:	397 students	416	-4.8%
Duplicated:	787 students	833	-5.8%
Courses:	24	25	

School: Travis High School, 007

COURSE NAME	NUMBER	ACTUAL ENROLLMENT TOTAL	SECTIONS	PTR	SCI ACD TRANS	IMPACT?	NEW PTR
English II	1012H	48	2	24:1	8	no	28:1
Geometry II	3412H	23	1	23:1	3	no	26:1
Phy Sci II	4015H	0	0	n/a	1	yes	+1 course
Biology I	4122H	108	4	27:1	8	no	29:1
World Geog. II	4513H	51	2	26:1	3	no	27:1
World Hist. II	4613H	43	2	22:1	2	no	23:1

TOTAL COUNTS:	Without Sci Acd:	With Sci Acd:	Percent Change:
Unduplicated:	375 students	384	-2.4%
Duplicated:	692 students	717	-3.6%
Courses:	28	29	

Figure E-1. (Continued, Page 3 of 5)
Note: Impact is indicated if additional courses or sections would be required (if new ptr > 30:1) with Science Academy students at home school.

School: Crockett High School, 008

COURSE NAME	NUMBER	ACTUAL ENROLLMENT TOTAL	SECTIONS	PTR	SCI ACD TRANS	IMPACT?	NEW PTR
English II	1012H	93	3	31:1	7	yes	33:1
English IV	1022H	111	4	28:1	1	no	28:1
Geometry II	3412H	31	2	16:1	4	no	18:1
Phy Sci II	4015H	0	0	n/a	3	yes +1 course	
Biology I	4122H	91	4	23:1	6	no	24:1
Chemistry II	4322H	101	5	20:1	1	no	20:1
Physics II	4423H	39	3	13:1	1	no	13:1
World Geog. II	4513H	127	6	21:1	5	no	22:1
World Hist. II	4613H	94	3	31:1	1	no	31:1

TOTAL COUNTS:	Without Sci Acd:	With Sci Acd:	Percent Change:
Unduplicated:	662 students	675	-1.9%
Duplicated:	1341 students	1370	-2.2%
Courses:	29	30	

School: Anderson High School, 009

COURSE NAME	NUMBER	ACTUAL ENROLLMENT TOTAL	SECTIONS	PTR	SCI ACD TRANS	IMPACT?	NEW PTR
English II	1012H	95	4	24:1	8	no	26:1
Geometry II	3412H	32	2	16:1	6	no	19:1
Phy Sci II	4015H	0	0	n/a	1	yes +1 course	
Biology I	4122H	81	3	27:1	3	no	28:1
Chemistry II	4322H	43	2	22:1	4	no	24:1
World Geog. II	4513H	86	3	29:1	7	yes	31:1
World Hist. II	4613H	38	2	19:1	1	no	19:1

TOTAL COUNTS:	Without Sci Acd:	With Sci Acd:	Percent Change:
Unduplicated:	462 students	470	-1.7%
Duplicated:	927 students	957	-3.2%
Courses:	31	32	

Figure E-1. (Continued, Page 4 of 5)
Note: Impact is indicated if additional courses or sections would be required (if new ptr > 30:1) with Science Academy students at home school.

School: LBJ High School, 010

COURSE NAME	NUMBER	ACTUAL ENROLLMENT TOTAL	SECTIONS	PTR	SCI ACD TRANS	IMPACT?	NEW PTR
English II	1012H	31	2	15:1	78	yes	+3 sections
English IV	1022H	32	2	16:1	15	no	24:1
English VI	1032H	32	2	23:1	1	no	17:1
Algebra IV	3322H	28	1	28:1	11	yes	+1 sections
Geometry II	3412H	32	2	16:1	36	yes	+2 sections
Trigonometry	3621H	3	1	3:1	8	no	11:1
Elem. Analysis	3624H	50	2	25:1	2	no	26:1
Phy Sci II	4015H	10	1	10:1	33	yes	+2 sections
Biology I	4122H	45	2	23:1	56	yes	+3 sections
Physiology II	4126H	14	1	14:1	1	no	15:1
Chemistry II	4322H	23	1	23:1	15	yes	+1 section
Physics II	4423H	17	1	17:1	15	yes	+1 section
World Geog. II	4513H	35	2	18:1	47	yes	+1 section
World Hist. II	4613H	27	1	27:1	14	yes	+1 section
Amer. Hist. II	4732H	28	1	28:1	1	yes	+1 section

TOTAL COUNTS:	Without Sci Acd:	With Sci Acd:	Percent Change:
Unduplicated:	221 students	343	+55.2%
Duplicated:	469 students	800	+70.6%
Courses:	26	26	

Figure E-1. (Continued, Page 5 of 5)
Note: Impact is indicated if additional courses or sections would be required (if new ptr > 30:1) with Science Academy transfer students at LBJ in addition to Science Academy students assigned to LBJ as their home school.

Attachment E-1

SAS PROGRAM CALCULATING HONORS COURSE ENROLLMENT

```
1       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SAS4G                    8:11 MONDAY, JUNE 23, 1986

NOTE: THE JOB EV7SAS4G HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (019860011).

NOTE: CPU ID   VERSION = FF   SERIAL = 013553   MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1          * OPTION NONOTES NONUMBER NODATE;                                    00000130
2          * OPTION ERRORS=0;                                                   00000140
3            OPTION MISSING=.;                                                  00000150
4                                                                               00000160
5             DATA SCIACD;                                                      00000170
6              INPUT STUID $ 1-7 SEX $ 8 GRADE $ 9-10 ETH $ 11 STATUS 12;       00000180
7             CARDS;                                                            00000190

NOTE: DATA SET USER010.SCIACD HAS 185 OBSERVATIONS AND 5 VARIABLES. 346 OBS/TRK.
NOTE: THE DATA STATEMENT USED 4.23 SECONDS AND 322K.

193           ;                                                                 00000210
194                                                                             00000220
195           DATA SG12;                                                        00000230
196            INFILE SG12 RECFM=F LRECL=178 BLKSIZE=4094;                      00000240
197            INPUT GRADE $ 31-32  SCHOOL $ 1-3  COURSE $ 82-86   POINT $ 86-86 00000250
198              ACTIVE $ 138-138 . ETH $ 30   $ 79 TEACHER PD2. STUID $ 4-10;  00000260
199                                                                             00000270
200            TITLE1 PROG: SA-MG015 01 01;                                     00000280
201            TITLE2 AUSTIN INDEPENDENT SCHOOL DISTRICT;                       00000290
202            TITLE3 DEPARTMENT OF MANAGEMENT INFORMATION;                     00000300
203            TITLE4 OFFICE OF RESEARCH AND EVALUATION;                        00000310
204            TITLE5                                ;                          00000320
205            TITLE6 REPORT ON FREQUENCY OF SCIENCE ACADEMY AND REGULAR STUDENTS 00000330
206         IN HONORS COURSES, 1985-86;                                         00000340
207                                                                             00000350
208           IF ACTIVE = 'A';                                                  00000360
209           IF POINT  = 'H';                                                  00000370
210                                                                             00000380
211         *    SORT DATA=SG12;                                                00000390
212         * BY STUID;                                                        00000400
213                                                                             00000410
214                                                                             00000420
215         * DATA MERGE;                                                      00000430
216         *   SET SG12;                                                      00000440
217         *   BY STUID;                                                      00000450
218         * IF FIRST.STUID;                                                  00000460
219                                                                             00000461
220                                                                             00000470

NOTE: INFILE SG12 HAS THE FOLLOWING CHARACTERISTICS:
      DCB=(BLKSIZE=4094,LRECL=178,RECFM=F)

NOTE: 97883 LINES WERE READ FROM INFILE SG12.
NOTE: DATA SET USER010.SG12 HAS 8400 OBSERVATIONS AND 8 VARIABLES. 246 OBS/TRK.
NOTE: THE DATA STATEMENT USED 300.00 SECONDS AND 312K.

220           PROC SORT DATA=SG12;                                              00000470
221             BY COURSE;                                                      00000480
```

```
2       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    8:11 MONDAY, JUNE 23, 1986

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.SG12 HAS 8468 OBSERVATIONS AND 8 VARIABLES. 248 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 25.63 SECONDS AND 340K.

222           PROC SORT; BY GRADE;                                    00000490
223                                                                   00000500

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.SG12 HAS 8468 OBSERVATIONS AND 8 VARIABLES. 248 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 27.35 SECONDS AND 292K.

223           PROC SORT; BY SCHOOL;                                   00000500
224                                                                   00000510

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.SG12 HAS 8468 OBSERVATIONS AND 8 VARIABLES. 248 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 34.65 SECONDS AND 292K.

224           PROC FREQ;                                              00000510
225             TABLES COURSE*GRADE;                                  00000520
226             BY SCHOOL;                                            00000530
227                                                                   00000540
228                                                                   00000550

NOTE: THE PROCEDURE FREQ USED 32.58 SECONDS AND 388K AND PRINTED PAGES 1 TO 33.

226           PROC SORT DATA=SG12;                                    00000550
229             BY STUID;                                             00000560
230                                                                   00000570
231                                                                   00000580

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.SG12 HAS 8468 OBSERVATIONS AND 8 VARIABLES. 248 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 47.87 SECONDS AND 292K.

231           PROC SORT DATA=SCIACD;                                  00000580
232             BY STUID;                                             00000590
233                                                                   00000600
234                                                                   00000610

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.SCIACD HAS 165 OBSERVATIONS AND 5 VARIABLES. 346 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 37.05 SECONDS AND 292K.

234           DATA SPLASH;                                            00000610
235             MERGE SCIACD (IN=GNACAD) SG12;                        00000620
236             BY STUID;                                             00000630
```

```
3       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASAG                    8:11 MONDAY, JUNE 23, 1986

237             IF CALAD;                                                          00000640
238                                                                                00000650
239                                                                                00000660

NOTE: DATA SET USER010.SPLASH HAS 628 OBSERVATIONS AND 10 VARIABLES. 194 OBS/TRK.
NOTE: THE DATA STATEMENT USED 20.53 SECONDS AND 306K.

239          PROC SORT DATA=SPLASH;                                                00000660
240              BY GRADE;                                                         00000670
241              BY COURSE;                                                        00000680
242                                                                                00000690

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.SPLASH HAS 628 OBSERVATIONS AND 10 VARIABLES. 194 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 39.59 SECONDS AND 292K.

242          PROC FREQ DATA=SPLASH;                                                00000690
243              TABLES COURSE*GRADE;                                              00000700
244                                                                                00000710
245                                                                                00000720

NOTE: THE PROCEDURE FREQ USED 9.85 SECONDS AND 388K AND PRINTED PAGES 34 TO 36.

245          PROC DELETE DATA=SG12;                                                00000720
246          *    DELETE DATA=NEWSG;                                               00000730
247                                                                                00000740

NOTE: THE PROCEDURE DELETE USED 2.10 SECONDS AND 284K.

247          PROC DELETE DATA=SCIACD;                                              00000740
248                                                                                00000750

NOTE: THE PROCEDURE DELETE USED 2.35 SECONDS AND 284K.

248          PROC DELETE DATA=SPLASH;                                              00000750
249                                                                                00000760

NOTE: THE PROCEDURE DELETE USED 2.08 SECONDS AND 284K.
NOTE: SAS USED 388K MEMORY.

NOTE: SAS INSTITUTE INC.
      SAS CIRCLE
      PO BOX 8000
      CARY, N.C.  27511-8000
```

Magnet Schools Assistance Program

Appendix F

SCIENCE ACADEMY STUDENT SURVEY

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Magnet Schools Assistance Program

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SCIENCE ACADEMY STUDENT SURVEY

Purpose

A survey of Science Academy students was conducted to provide information about the students that would address the following decision and evaluation questions and information need:

> **Decision Question D3.** Should the Science Academy of Austin magnet program be continued as it is, modified, expanded, or discontinued?
>
> > **Evaluation Question D3-11.** What were the characteristics of students who enrolled (in the Science Academy)?
> >
> > **Information Need 5.** What information will be helpful for the planning of a junior high science magnet program at Kealing?

Information gathered from students regarding their perceptions of the magnet program with respect to its academic and social aspects provide yet another source of feedback to administrators when making decisions about the program.

Procedure

Survey Development and Administration

The magnet program evaluator took the following steps in developing survey items and distributing the survey for administration to students.

1. Magnet program staff expressed an interest in obtaining information about students' perceptions of and attitudes toward the Science Academy magnet program. During meetings held in November with program administrators, possible topics and items for the survey were discussed.

2. Preliminary items were drafted and sent to magnet program administrative staff on December 18, 1985 for review (see Attachment F-1).

3. Based on feedback, items were revised, deleted, or added for the finalized format.

4. The student surveys were sent out on April 11, 1986 to the eight teachers who instructed Science Academy students during a "zero

hour period" before the official start of the school day. Instructions to be read to the students were included (see Attachment F-2).

5. The teachers administered the surveys to their classes and returned the surveys during the weeks of April 14-18 and April 21-25.

Sample

Science Academy students enrolled in one of eight zero hour courses and present on the day of the survey administration received a 28-item questionnaire about the program. No make-ups were offered in order to reduce the in-class time needed for administering the survey. Two hundred surveys were distributed to the teachers.

Analyses

Student responses were coded and entered into a computer data file. Student identification numbers were also entered if the student had written his/her name on the survey. Items were treated as missing data if students: 1) did not respond to the question, 2) bubbled in more than one answer, or 3) filled in a bubble that did not correspond with a response option.

The number and percent of students responding to each option for each question were tabulated by computer. Comments in response to open-ended questions were reviewed by the evaluator and classified by type.

The following classification scheme was developed for categorizing student comments:

I. Topic codes were assigned for the content of the comment. As many codes were assigned as necessary to catalogue the topics mentioned in the response. The alpha codes were:

   A. Academics--courses, outcomes, benefits,
   B. Social--peers, extracurricular activities, time,
   C. Equipment and materials--computers, electron microscope, etc.,
   D. Teachers--Science Academy faculty, and
   E. Administration--the director, curriculum coordinator, or organization and administration in general.

II. A numeric code was assigned to describe the level of detail used by the student when making comments about the topics listed:

   1 = General--topics are listed matter-of-factly, or
   2 = Specific--courses, teachers, classmates, or equipment are mentioned by name or with detail.

III. A numeric code was used to assess the overall feeling tone that was conveyed in the comment:

1 = Neutral/Mild--no affective terms other than "like" or "dislike" were used,
2 = Moderate--some affective words were used, or
3 = Strong--affective mood conveyed strongly through words like "hate" or "excellent."

Each survey was reviewed and codes were assigned to each response for the topics, terms, and tone. Some responses were not classifiable because they were not in reference to the Science Academy. Attachment F-4 presents typical comments classified within each category.

Responses to each item were correlated with responses to all other items to investigate patterns of responses by students. Responses also were correlated with students' grade point average (GPA) at the end of the fifth six-week reporting period. Attachment F-3 shows the SAS command files written to do the correlational analyses on the data.

Results

Of the 166 students in the Science Academy at the time of the survey administration in April, 143 surveys were completed and returned, which is an 86% return rate. For analyses other than inter-item correlations that required matching with student ID numbers, the 100 students who wrote their names on their surveys were included in a reduced sample.

Figure F-1 shows each survey question and the response rate for each response option. Inter-item Pearson Product-Moment correlation coefficients are presented in Figure F-2. Correlations of items with students' grade point averages by grade level are shown in Figure F-3.

Response Rate

The notable results from the response rate data are the following:

- 52% of the students reported feeling motivated by being with students with similar interests, and 50% reported being motivated just by being in the Science Academy.
- 79% of the students agreed that they are considering a career in a science, math, or technology field, and 80% plan to go to college.

- 64% of the students disagreed that they are hassled by other students, and only 13% agreed they were hassled at times, implying that for the most part, Science Academy students are being successfully assimilated into the LBJ student body.

- 85% of the students participate in extracurricular activities, and half (50%) participate in two or three activities.

- 86% reported they would encourage other interested students to apply to the Science Academy.

Inter-Item Correlations

Based on the inter-item correlational results, the following significant relationships were revealed:

- Feeling inspired by the teachers is related to feeling motivated to do one's best.

- The perception that the courses are difficult is related to feeling that the teachers expect too much from the students, and the converse, viewing the courses as easy is related to thinking that the teachers do not expect too much, is also true.

- Students who think their study habits are not as good as they should be also desire to improve their study skills. The feeling of preparedness in study skills is directly related to feeling prepared in other curriculum areas. Feeling prepared in math was related to feeling prepared in science but not in other areas.

Grade Point Average Correlations

The table below breaks down GPA by grade level. Beginning with the tenth graders, state law changed GPA calculations from a 100 point system to a five point system. Because the grading and calculation methods are different, eleventh graders cannot be directly compared to tenth-and ninth-grade students. The summary data and correlational results will be presented for each group, but no attempt will be made to compare the few eleventh-grade students to the other two groups.

GRADE	N	MEAN	MEDIAN	MIN	MAX	STANDARD DEVIATION
9	66	2.9289	2.9285	0.7142	4.5555	0.9439
10	28	3.3175	3.4235	1.7619	4.4761	0.5847
11	6	87.5593	88.4928	80.0625	95.1935	5.4697

The correlations of student survey responses with grade point averages for the reduced sample of 100 students revealed the following significant relationships:

- Ninth and tenth graders with low GPA's agreed that the Science Academy teachers expected too much of them; students with high GPA's tended to disagree.

- Both ninth-and tenth-grade students with high GPA's agreed they were prepared in math; low GPA students tended to feel unprepared. High GPA tenth and eleventh graders also reported being prepared in science. No other correlations between subject area preparation and GPA were significant.

- GPA was related to feeling prepared in study skills or feeling that study skills could be improved. Ninth-grade students with low GPA's agreed they wanted to improve their study skills, and low GPA tenth-grade students tended to feel unprepared in study skills. The converse was true for high GPA students.

- GPA was related to perceptions of course difficulty for tenth graders only. Students with high GPA's tended to think the Science Academy courses leaned toward the easy side. Low GPA students thought the courses were difficult.

Student Comments

The comments from students in response to the two open-ended questions asking what they liked best and what they disliked about the Science Academy provided additional information about student characteristics and student reaction to the first year of the magnet program.

Of the 143 student surveys returned, 111 students (78%) wrote comments about what they liked best about the Science Academy. In response to what they disliked, 113 (79%) wrote comments. Seventy-five percent of the respondents replied to both questions, and an additional six percent responded to one question.

Of the classifiable comments for the question, "What do you like best about the Science Academy?", the results showed:

- There were 137 topics scored with the following frequencies and percentages:

Academics:	73	53.5%
Social:	17	12.5%
Equipment:	14	10.0%
Teachers:	30	22.0%
Administration:	3	2.0%

- The majority (74%) of the comments were expressed in general terms, usually in list form, and the remaining 26% were with additional detail or specificity.

- Only 3% of the comments revealed a strongly favorable mood, 24% a moderate tone, and 73% conveyed little or no affective tone.

In response to the question, "What do you dislike about the Science Academy?", the results revealed the following:

- There were 132 topic codes assigned to the 106 students who wrote classifiable comments, with the following frequencies and percentages:

Academics:	48	36%
Social:	30	23%
Equipment:	4	3%
Teachers:	32	24%
Administration:	18	14%

- Again, the majority of comments (61%) were in general terms, while 39% of the responses provided details or names of persons or courses.

- With respect to the feeling tone of the comments, 12% expressed a strong, negative affective tone, 27% a moderate tone, and 60% conveyed little or no affect.

Discussion

The results of the student survey provided a more personal glimpse into the attitudes and perceptions of the Science Academy students, that hopefully, will benefit decision makers in identifying student needs and areas of strength and weakness in the magnet program.

Some of the concerns expressed by the administration did not materialize when the students were queried in the form of a survey. For example, Science Academy students appeared to be fitting in with the larger LBJ student body with less teasing or hassling than expected.

Also, the concern that Science Academy students wouldn't have time for extracurricular activities was not supported. The administration encouraged students to continue participating in activities. More than 85% of the students reported participating in one or more activity. Participating in extracurricular activities did not have a significant

impact on GPA. **In fact, for both ninth and eleventh graders, GPA tended to be positively correlated with the number of activities in which a student participated.** That is, students with high GPAs tended to participate in more activities than students with lower GPAs. For tenth graders, only a slight trend toward a negative relationship was evident.

Riding the bus for more than 30 minutes each way did not impact GPA in a detrimental (or positive) way, nor did it deter participation in extracurricular activities.

For the most part, the Science Academy students were highly motivated and tended to feel inspired by their teachers. They also enjoyed the opportunities to study topics which interested them, which was also confirmed by the numerous comments to this effect.

Students also perceived distinct advantages to being in the Science Academy, such as helping them get into a good university and being sure of their plans to enter careers related to their field of study. However, students were divided on whether they thought the Science Academy would provide them with more immediate benefits, like improving performance on standardized tests.

With respect to issues that would be of interest to the establishment of the junior high school science magnet, nearly half agreed that such a program would help prepare a student for the Science Academy. Most said they would encourage interested students to apply to the Academy. Just over half did not have enough junior high science to satisfy their own interests, and perhaps would have been interested in a junior high science magnet themselves.

The relationships among GPA and perceptions of course difficulty and teacher expectations suggested that students were probably making attributions about the teachers and courses based on their performance. Those who did well thought the courses were easy and teacher expectations were not excessive. Likewise, students with lower GPAs tended to think the courses were difficult and that teachers expected too much from them.

Of course, some caution must be exercised when interpreting data from self-report measures like the student survey. Although the instructions stressed that there were no right answers and that what the student thought was most important, it was still possible that students marked the most socially appropriate answer or did not take the survey seriously.

Also, correlations with GPA for tenth- and eleventh-grade students should be interpreted cautiously, as the sample sizes of 28 and 6 respectively were too small to be considered reliable. Despite the limitations, the student survey data helped provide information that could not be deduced from standardized test scores or GPA alone, nor were the results always intuitive.

FIGURE F-1

SCIENCE ACADEMY STUDENT SURVEY QUESTIONS AND RESPONSES

APPENDIX F

Figure F-1. SCIENCE ACADEMY STUDENT SURVEY QUESTIONS AND RESPONSES. (Page 1 of 3)

1. BEING WITH OTHER SCIENCE ACADEMY STUDENTS WHO HAVE INTERESTS SIMILAR TO MINE MOTIVATES ME TO LEARN.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	143	13	62	51	10	7
		9%	43%	36%	7%	5%

2. THE SCIENCE ACADEMY PROVIDES AN OPPORTUNITY TO STUDY TOPICS THAT INTEREST ME.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	142	31	70	27	9	5
		22%	49%	19%	6%	4%

3. THE SCIENCE ACADEMY TEACHERS INSPIRE ME TO LEARN.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	142	14	41	60	18	9
		10%	29%	42%	13%	6%

4. BEING IN THE SCIENCE ACADEMY MOTIVATES ME TO TRY TO DO MY BEST.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	143	18	52	52	10	11
		13%	36%	36%	7%	8%

5. THE SCIENCE ACADEMY COURSES ARE:
A. TOO EASY C. JUST RIGHT E. TOO DIFFICULT
B. EASY D. DIFFICULT

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	142	3	13	57	59	10
		2%	9%	40%	42%	7%

6. THE SCIENCE ACADEMY TEACHERS EXPECT TOO MUCH FROM ME.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	142	14	41	60	18	9
		10%	29%	42%	13%	6%

7. MY STUDY HABITS ARE NOT AS GOOD AS THEY SHOULD BE.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	143	27	50	34	18	14
		19%	35%	24%	12%	10%

8. I WOULD LIKE TO LEARN HOW TO IMPROVE MY STUDY SKILLS.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	142	34	45	46	6	11
		24%	32%	32%	4%	8%

9. I LEARN A LOT FROM USING THE COMPUTERS AND SCIENCE EQUIPMENT.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	139	24	58	33	10	14
		17%	42%	24%	7%	10%

10. WHAT DO YOU PLAN TO DO AFTER YOU GRADUATE FROM HIGH SCHOOL?
A. FIND A SCIENCE, MATH, OR TECHNOLOGY RELATED JOB.
B. FIND ANY KIND OF JOB.
C. GO TO A COMMUNITY COLLEGE.
D. GO TO A UNIVERSITY.
E. I DON'T KNOW YET.

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	142	6	0	3	111	22
		4%	0%	2%	78%	16%

11. I WOULD CONSIDER PURSUING A CAREER IN SCIENCE, MATH, OR TECHNOLOGY.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	143	65	48	19	4	7
		45%	34%	13%	3%	5%

12. OTHER STUDENTS HASSLE ME BECAUSE I AM IN THE SCIENCE ACADEMY.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	143	3	16	32	49	43
		2%	11%	23%	34%	30%

13. I THINK MY REGULAR CLASS TEACHERS EXPECT A LOT FROM ME JUST BECAUSE I AM IN THE SCIENCE ACADEMY.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	142	15	37	28	35	27
		10%	26%	20%	25%	19%

14. HOW MUCH TIME DO YOU SPEND RIDING THE BUS TO OR FROM SCHOOL?
A. I DON'T RIDE THE BUS.
B. LESS THAN 15 MINUTES EACH WAY.
C. 15-30 MINUTES EACH WAY.
D. 30-45 MINUTES EACH WAY.
E. 45-60 MINUTES EACH WAY.
F. MORE THAN 1 HOUR EACH WAY.

	NUMBER OF RESPONSES	A	B	C	D	E	F
TOTALS	142	24	13	25	31	34	15
		17%	9%	18%	22%	24%	10%

15. IN HOW MANY EXTRACURRICULAR ACTIVITIES DO YOU PARTICIPATE? (INCLUDE BAND, CHOIR, SPORT, CLUBS, ETC.)
A. NONE C. 2-3 E. MORE THAN FIVE
B. 1 D. 4-5

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	142	21	32	71	9	9
		15%	23%	50%	6%	6%

16. WHAT I LEARNED IN JUNIOR HIGH SCIENCE COURSES IS USEFUL NOW IN WHAT I'M STUDYING IN THE SCIENCE ACADEMY.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	135	15	47	31	16	26
		10%	33%	22%	17%	18%

17. BEING IN THE SCIENCE ACADEMY WILL PROBABLY HELP A STUDENT GET INTO A GOOD UNIVERSITY.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	143	51	65	17	3	7
		36%	45%	12%	2%	5%

18. I EXPECT THAT BEING IN THE SCIENCE ACADEMY WILL HELP ME DO WELL ON THE TEAMS TEST.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	143	22	35	42	24	20
		15%	25%	29%	17%	14%

19. DID YOU STUDY SCIENCE IN ELEMENTARY SCHOOL?
A. YES B. NO

	NUMBER OF RESPONSES	A	B
TOTALS	142	101	41
		71%	29%

20. WOULD YOU HAVE WANTED MORE SCIENCE IN ELEMENTARY SCHOOL?
A. YES B. NO

	NUMBER OF RESPONSES	A	B
TOTALS	141	77	64
		55%	45%

Figure F-1. (Continued, Page 2 of 3)

21. DID YOU HAVE ENOUGH SCIENCE IN JUNIOR HIGH TO SATISFY YOUR INTEREST?
A. YES B. NO

	NUMBER OF RESPONSES	A	B
TOTALS	143	64 45%	79 55%

22-26:
WHEN YOU ENTERED THE SCIENCE ACADEMY, HOW WELL PREPARED WERE YOU IN THE FOLLOWING AREAS? (DID YOU HAVE THE KNOWLEDGE AND SKILLS TO UNDERSTAND AND DO THE LESSONS IN YOUR CLASSES?)

22. SCIENCE:
A. NOT AT ALL PREPARED D. WELL PREPARED
B. POORLY PREPARED E. VERY WELL PREPARED
C. ADEQUATELY PREPARED

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	141	3 2%	24 17%	66 47%	36 26%	12 8%

23. MATH:
A. NOT AT ALL PREPARED D. WELL PREPARED
B. POORLY PREPARED E. VERY WELL PREPARED
C. ADEQUATELY PREPARED

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	140	4 3%	14 10%	45 32%	49 35%	28 20%

24. LANGUAGE ARTS:
A. NOT AT ALL PREPARED D. WELL PREPARED
B. POORLY PREPARED E. VERY WELL PREPARED
C. ADEQUATELY PREPARED

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	139	3 2%	10 7%	42 30%	47 34%	37 27%

25. SOCIAL STUDIES:
A. NOT AT ALL PREPARED D. WELL PREPARED
B. POORLY PREPARED E. VERY WELL PREPARED
C. ADEQUATELY PREPARED

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	137	4 3%	5 4%	32 23%	55 40%	41 30%

26. STUDY SKILLS:
A. NOT AT ALL PREPARED D. WELL PREPARED
B. POORLY PREPARED E. VERY WELL PREPARED
C. ADEQUATELY PREPARED

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	141	13 9%	30 21%	62 45%	23 16%	13 9%

27. I WOULD ENCOURAGE JUNIOR HIGH STUDENTS WHO ARE INTERESTED IN SCIENCE TO APPLY TO THE SCIENCE ACADEMY.
A. YES B. NO

	NUMBER OF RESPONSES	A	B
TOTALS	139	120 86%	19 14%

28. A JUNIOR HIGH SCIENCE ACADEMY WOULD HELP PREPARE STUDENTS FOR THE HIGH SCHOOL SCIENCE ACADEMY.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	139	25 18%	39 28%	35 25%	24 17%	16 12%

Figure F-1. (Continued, Page 3 of 3)

FIGURE F-2

INTER-ITEM PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS

SCIENCE ACADEMY STUDENT SURVEY RESULTS 13:36 TUESDAY, MAY 6, 1986 10

VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMUM
X28	139	2.76258993	1.26022044	384.00000000	1.00000000	5.00000000

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12
X1	1.00000 0.0000 143	0.47704 0.0001 142	0.50721 0.0001 142	0.56170 0.0001 143	0.11454 0.1747 142	-0.30232 0.0002 143	0.10627 0.2065 143	0.20362 0.0151 142	0.41120 0.0001 139	0.18863 0.0246 142	0.40727 0.0001 143	0.05396 0.5221 143
X2	0.47704 0.0001 142	1.00000 0.0000 142	0.40683 0.0001 141	0.41957 0.0001 142	0.16278 0.0538 141	-0.26450 0.0015 142	0.09897 0.2412 142	0.09790 0.2481 141	0.54286 0.0001 138	0.15449 0.0674 141	0.46071 0.0001 142	0.12320 0.1441 142
X3	0.50721 0.0001 142	0.40683 0.0001 141	1.00000 0.0000 142	0.47674 0.0001 142	0.10981 0.1949 141	-0.39757 0.0001 142	0.15490 0.0657 142	0.24254 0.0038 141	0.39052 0.0001 138	0.12511 0.1394 141	0.32951 0.0001 142	0.14048 0.0954 142
X4	0.56170 0.0001 143	0.41957 0.0001 142	0.47674 0.0001 142	1.00000 0.0000 143	0.01807 0.8310 142	-0.22502 0.0069 143	0.12355 0.1415 143	0.34139 0.0001 142	0.41755 0.0001 139	0.17812 0.0339 142	0.34915 0.0001 143	-0.01741 0.8365 143
X5	0.11454 0.1747 142	0.16278 0.0538 141	0.10981 0.1949 141	0.01807 0.8310 142	1.00000 0.0000 142	-0.47172 0.0001 142	-0.07955 0.3467 142	0.17754 0.0352 141	0.18432 0.0305 138	0.02919 0.7311 141	0.26856 0.0012 142	-0.02991 0.7239 142
X6	-0.30232 0.0002 143	-0.26450 0.0015 142	-0.39757 0.0001 142	-0.22502 0.0069 143	-0.47172 0.0001 142	1.00000 0.0000 143	0.15143 0.0710 143	-0.04240 0.6164 142	-0.29875 0.0004 139	-0.04435 0.6002 142	-0.32619 0.0001 143	0.04943 0.5577 143
X7	0.10627 0.2065 143	0.09897 0.2412 142	0.15490 0.0657 142	0.12355 0.1415 143	-0.07955 0.3467 142	0.15143 0.0710 143	1.00000 0.0000 143	0.39301 0.0001 142	0.15777 0.0636 139	0.10504 0.2135 142	0.14250 0.0896 143	0.06484 0.4416 143
X8	0.20362 0.0151 142	0.09790 0.2481 141	0.24254 0.0038 141	0.34139 0.0001 142	0.17754 0.0352 141	-0.04240 0.6164 142	0.39301 0.0001 142	1.00000 0.0000 142	0.18682 0.0277 139	0.10783 0.2031 141	0.32627 0.0001 142	0.03225 0.7032 142
X9	0.41120 0.0001 139	0.54286 0.0001 138	0.39052 0.0001 138	0.41755 0.0001 139	0.18432 0.0305 138	-0.29875 0.0004 139	0.15777 0.0636 139	0.18682 0.0277 139	1.00000 0.0000 139	0.04556 0.5957 138	0.32529 0.0001 139	0.10191 0.2326 139
X10	0.18863 0.0246 142	0.15449 0.0674 141	0.12511 0.1394 141	0.17812 0.0339 142	0.02919 0.7311 141	-0.04435 0.6002 142	0.10504 0.2135 142	0.10783 0.2031 141	0.04556 0.5957 138	1.00000 0.0000 142	0.26769 0.0013 142	-0.09644 0.2536 142
X11	0.40727 0.0001 143	0.46071 0.0001 142	0.32951 0.0001 142	0.34915 0.0001 143	0.26856 0.0012 142	-0.32619 0.0001 143	0.14250 0.0896 143	0.32627 0.0001 142	0.32529 0.0001 139	0.26769 0.0013 142	1.00000 0.0000 143	0.02141 0.7996 143
X12	0.05396 0.5221 143	0.12320 0.1441 142	0.14048 0.0954 142	-0.01741 0.8365 143	-0.02991 0.7239 142	0.04943 0.5577 143	0.06484 0.4416 143	0.03225 0.7032 142	0.10191 0.2326 139	-0.09644 0.2536 142	0.02141 0.7996 143	1.00000 0.0000 143

Figure F-2. INTER-ITEM PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS. (Page 1 of 7)

SCIENCE ACADEMY STUDENT SURVEY RESULTS 13:36 TUESDAY, MAY 6, 1986 11

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12
X13	0.09237 0.2742 142	0.24669 0.0032 141	0.20956 0.0126 141	0.10163 0.2288 142	-0.08959 0.2908 141	0.11791 0.1622 142	0.27021 0.0011 142	0.24913 0.0029 141	0.19852 0.0196 138	0.09474 0.2638 141	0.14673 0.0814 142	0.38914 0.0001 142
X14	0.04926 0.5604 142	0.04842 0.5686 141	0.04327 0.6105 141	0.06618 0.4339 142	0.08556 0.3131 141	-0.05742 0.4973 142	0.13222 0.1167 142	0.17941 0.0333 141	-0.00445 0.9587 138	-0.09605 0.2572 141	0.16009 0.0570 142	-0.08091 0.3385 142
X15	0.16301 0.0526 142	0.09311 0.2721 141	0.16673 0.0481 141	0.14484 0.0855 142	0.18390 0.0290 141	0.05630 0.5057 142	0.11236 0.1831 142	0.04328 0.6103 141	0.10504 0.2202 138	0.09644 0.2553 141	0.17237 0.0402 142	0.18420 0.0282 142
X16	0.27930 0.0007 143	0.16892 0.0445 142	0.16381 0.0514 142	0.13372 0.1113 143	0.30277 0.0002 142	-0.19357 0.0205 143	0.00720 0.9320 143	0.01461 0.8630 142	0.10994 0.1976 139	0.05895 0.4859 142	0.14849 0.0767 143	-0.03205 0.7039 143
X17	0.40606 0.0001 143	0.37297 0.0001 142	0.27786 0.0008 142	0.33012 0.0001 143	0.16824 0.0454 142	-0.25497 0.0021 143	0.18649 0.0257 143	0.21426 0.0105 142	0.28171 0.0008 139	0.09490 0.2612 142	0.34425 0.0001 143	0.08965 0.2870 143
X18	0.37352 0.0001 143	0.32976 0.0001 142	0.32741 0.0001 142	0.38986 0.0001 143	0.16558 0.0489 142	-0.15603 0.0628 143	0.04113 0.6258 143	0.21608 0.0098 142	0.25615 0.0023 139	0.06848 0.4181 142	0.21112 0.0114 143	0.18369 0.0281 143
X19	-0.04691 0.5794 142	-0.07635 0.3682 141	0.05130 0.5458 141	-0.13097 0.1203 142	0.04771 0.5742 141	0.01869 0.8252 142	-0.05831 0.4907 142	-0.03559 0.6752 141	-0.06728 0.4330 138	-0.23718 0.0046 141	-0.02019 0.8115 142	0.03086 0.7154 142
X20	0.22275 0.0079 141	0.18889 0.0254 140	0.15096 0.0750 140	0.13515 0.1101 141	0.15747 0.0631 140	-0.07974 0.3473 141	-0.03150 0.7108 141	0.14958 0.0777 140	0.04321 0.6161 137	0.06763 0.4272 140	0.17061 0.0431 141	0.24737 0.0031 141
X21	-0.20436 0.0144 143	-0.16920 0.0441 142	-0.21154 0.0115 142	-0.16509 0.0488 143	-0.24125 0.0038 142	0.19092 0.0224 143	-0.07764 0.3567 143	-0.17018 0.0429 142	-0.22441 0.0079 139	-0.04441 0.5998 142	-0.36292 0.0001 143	-0.17639 0.0351 143
X22	0.06267 0.4603 141	-0.04642 0.5860 140	0.09164 0.2816 140	0.14068 0.0961 141	-0.43200 0.0001 140	0.15057 0.0747 141	0.27794 0.0008 141	0.14922 0.0785 140	0.02937 0.7333 137	0.13900 0.1014 140	0.02523 0.7665 141	0.14393 0.0886 141
X23	-0.02768 0.7455 140	0.08347 0.4563 140	0.04331 0.6127 139	-0.04307 0.6134 140	-0.21402 0.0114 139	0.18962 0.0248 140	0.13148 0.1215 140	0.03510 0.6816 139	0.04295 0.6195 136	0.02873 0.7371 139	-0.03397 0.6903 140	0.23862 0.0045 140
X24	-0.08603 0.3139 139	0.04728 0.5818 138	-0.05131 0.5501 138	0.06875 0.4213 139	-0.16779 0.0492 138	0.24449 0.0037 139	0.00629 0.9415 139	-0.01321 0.8778 138	0.04725 0.5849 136	-0.03882 0.6512 138	-0.08219 0.3361 139	0.06098 0.4758 139
X25	0.16334 0.0565 137	0.06370 0.4613 136	0.10650 0.2172 136	0.13503 0.1157 137	0.07584 0.3802 136	0.02038 0.8131 137	0.18346 0.0319 137	0.24036 0.0048 136	0.17010 0.0494 134	0.17375 0.0431 136	0.23100 0.0066 137	-0.01944 0.8216 137

Figure F-2. (Continued, Page 2 of 7)

SCIENCE ACADEMY STUDENT SURVEY RESULTS 13:36 TUESDAY, MAY 6, 1986 12

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12
X26	0.03512	0.22058	0.06879	0.12344	-0.08059	0.06843	0.37308	0.34190	-0.00837	0.02724	0.10230	0.21825
	0.6793	0.0088	0.4193	0.1447	0.3439	0.4201	0.0001	0.0001	0.9226	0.7494	0.2274	0.0093
	141	140	140	141	140	141	141	140	137	140	141	141
X27	0.21574	0.17800	0.22521	0.21004	0.23557	-0.13412	0.18117	0.17483	0.19506	0.12164	0.14834	-0.05768
	0.0105	0.0360	0.0077	0.0127	0.0052	0.1141	0.0322	0.0395	0.0229	0.1537	0.0803	0.4984
	140	139	139	140	139	140	140	139	136	139	140	140
X28	0.20648	0.26434	0.25317	0.30284	-0.01357	-0.06574	0.06718	0.26223	0.20420	-0.02491	0.18962	0.13309
	0.0147	0.0017	0.0027	0.0003	0.8745	0.4420	0.4320	0.0019	0.0175	0.7718	0.0254	0.1183
	139	138	138	139	138	139	139	138	135	138	139	139

	X13	X14	X15	X16	X17	X18	X19	X20	X21	X22	X23	X24
X1	0.09237	0.04926	0.16301	0.27930	0.40606	0.37352	-0.04691	0.22275	-0.20436	0.06267	-0.02768	-0.08603
	0.2742	0.5604	0.0526	0.0007	0.0001	0.0001	0.5794	0.0079	0.0144	0.4603	0.7455	0.3139
	142	142	142	143	143	143	142	141	143	141	140	139
X2	0.24669	0.04842	0.09311	0.16892	0.37297	0.32976	-0.07635	0.18889	-0.16920	-0.04642	0.06347	0.04728
	0.0032	0.5686	0.2721	0.0445	0.0001	0.0001	0.3682	0.0254	0.0441	0.5860	0.4563	0.5818
	141	141	141	142	142	142	141	140	142	140	140	138
X3	0.20956	0.04327	0.16673	0.16381	0.27786	0.32741	0.05130	0.15096	-0.21154	0.09164	0.04331	-0.05131
	0.0126	0.6105	0.0481	0.0514	0.0008	0.0001	0.5458	0.0750	0.0115	0.2816	0.6127	0.5501
	141	141	141	142	142	142	141	140	142	140	139	138
X4	0.10163	0.06618	0.14484	0.13372	0.33012	0.38986	-0.13097	0.13515	-0.16509	0.14068	-0.04307	0.06875
	0.2288	0.4339	0.0855	0.1113	0.0001	0.0001	0.1203	0.1101	0.0488	0.0961	0.6134	0.4213
	142	142	142	143	143	143	142	141	143	141	140	139
X5	-0.08959	0.08556	0.18390	0.30277	0.16824	0.16558	0.04771	0.15747	-0.24125	-0.43200	-0.21402	-0.16779
	0.2908	0.3131	0.0290	0.0002	0.0454	0.0489	0.5742	0.0631	0.0038	0.0001	0.0114	0.0492
	141	141	141	142	142	142	141	140	142	140	139	138
X6	0.11791	-0.05742	0.05630	-0.19357	-0.25497	-0.15603	0.01869	-0.07974	0.19092	0.15057	0.18962	0.24449
	0.1622	0.4973	0.5057	0.0205	0.0021	0.0628	0.8252	0.3473	0.0224	0.0747	0.0248	0.0037
	142	142	142	143	143	143	142	141	143	141	140	139
X7	0.27021	0.13222	0.11236	0.00720	0.18649	0.04113	-0.05831	-0.03150	-0.07764	0.27794	0.13148	0.00629
	0.0011	0.1167	0.1831	0.9320	0.0257	0.6258	0.4907	0.7108	0.3567	0.0008	0.1215	0.9415
	142	142	142	143	143	143	142	141	143	141	140	139
X8	0.24913	0.17941	0.04328	0.01461	0.21426	0.21608	-0.03559	0.14958	-0.17018	0.14922	0.03510	-0.01321
	0.0029	0.0333	0.6103	0.8630	0.0105	0.0098	0.6752	0.0777	0.0429	0.0785	0.6816	0.8778
	141	141	141	142	142	142	141	140	142	140	139	138
X9	0.19852	-0.00445	0.10304	0.10994	0.28171	0.25615	-0.06728	0.04321	-0.22441	0.02937	0.04295	0.04725
	0.0196	0.9587	0.2202	0.1976	0.0008	0.0023	0.4330	0.6161	0.0079	0.7333	0.6195	0.5849
	138	138	138	139	139	139	138	137	139	137	136	136
X10	0.09474	-0.09605	0.09644	0.05895	0.09490	0.06848	-0.23718	0.06763	-0.04441	0.13900	0.02873	-0.03882
	0.2638	0.2572	0.2553	0.4859	0.2612	0.4181	0.0046	0.4272	0.5998	0.1014	0.7371	0.6512
	141	141	141	142	142	142	141	140	142	140	139	138

Figure F-2. (Continued, Page 3 of 7)

SCIENCE ACADEMY STUDENT SURVEY RESULTS 13:36 TUESDAY, MAY 6, 1986 13

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	X13	X14	X15	X16	X17	X18	X19	X20	X21	X22	X23	X24
X11	0.14673 0.0814 142	0.16009 0.0570 142	0.17237 0.0402 142	0.14849 0.0767 143	0.34425 0.0001 143	0.21112 0.0114 143	-0.02019 0.8115 142	0.17061 0.0431 141	-0.36292 0.0001 143	0.02523 0.7665 141	-0.03397 0.6903 140	-0.08219 0.3361 139
X12	0.38914 0.0001 142	-0.08091 0.3385 142	0.18420 0.0282 142	-0.03205 0.7039 143	0.08965 0.2870 143	0.18369 0.0281 143	0.03086 0.7154 142	0.24737 0.0031 141	-0.17639 0.0351 143	0.14393 0.0886 141	0.23862 0.0045 140	0.06098 0.4758 139
X13	1.00000 0.0000 142	-0.17237 0.0410 141	0.11657 0.1687 141	-0.07074 0.4028 142	0.11975 0.1558 142	0.20959 0.0123 142	-0.04814 0.5708 141	0.07755 0.3624 140	-0.09661 0.2527 142	0.30422 0.0003 140	0.23279 0.0058 139	0.18681 0.0282 138
X14	-0.17237 0.0410 141	1.00000 0.0000 142	0.01278 0.8805 141	0.02805 0.7404 142	0.02947 0.7277 142	-0.07078 0.4026 142	-0.14462 0.0871 141	-0.01325 0.8765 140	0.00057 0.9947 142	-0.03838 0.6526 140	0.05163 0.5461 139	-0.19255 0.0237 138
X15	0.11657 0.1687 141	0.01278 0.8805 141	1.00000 0.0000 142	0.27645 0.0009 142	0.16275 0.0530 142	0.17140 0.0414 142	-0.00961 0.9099 141	0.13963 0.0999 140	-0.08709 0.3027 142	0.04981 0.5589 140	0.09841 0.2491 139	0.08512 0.3209 138
X16	-0.07074 0.4028 142	0.02805 0.7404 142	0.27645 0.0009 142	1.00000 0.0000 143	0.19089 0.0224 143	0.09079 0.2809 143	0.00699 0.9342 142	0.08745 0.3025 141	0.08553 0.3098 143	-0.26112 0.0018 141	-0.13641 0.1080 140	0.04825 0.5727 139
X17	0.11975 0.1558 142	0.02947 0.7277 142	0.16275 0.0530 142	0.19089 0.0224 143	1.00000 0.0000 143	0.45874 0.0001 143	0.01139 0.8930 142	0.19498 0.0205 141	-0.08875 0.2918 143	0.02582 0.7612 141	-0.07102 0.4044 140	-0.11258 0.1870 139
X18	0.20959 0.0123 142	-0.07078 0.4026 142	0.17140 0.0414 142	0.09079 0.2809 143	0.45874 0.0001 143	1.00000 0.0000 143	-0.06126 0.4690 142	0.25231 0.0025 141	-0.12512 0.1365 143	0.02372 0.7801 141	-0.08527 0.4436 140	-0.03837 0.6538 139
X19	-0.04814 0.5708 141	-0.14462 0.0871 141	-0.00961 0.9099 141	0.00699 0.9342 142	0.01139 0.8930 142	-0.06126 0.4690 142	1.00000 0.0000 142	0.02667 0.7536 141	-0.07588 0.3694 142	-0.15311 0.0709 140	0.02374 0.7815 139	-0.06675 0.4367 138
X20	0.07755 0.3624 140	-0.01325 0.8765 140	0.13963 0.0999 140	0.08745 0.3025 141	0.19498 0.0205 141	0.25231 0.0025 141	0.02667 0.7536 141	1.00000 0.0000 141	-0.34377 0.0001 141	0.00644 0.9400 139	0.05912 0.4910 138	0.04779 0.5792 137
X21	-0.09661 0.2527 142	0.00057 0.9947 142	-0.08709 0.3027 142	0.08553 0.3098 143	-0.08875 0.2918 143	-0.12512 0.1365 143	-0.07588 0.3694 142	-0.34377 0.0001 141	1.00000 0.0000 143	0.01937 0.8196 141	-0.00796 0.9256 140	0.01072 0.9004 139
X22	0.30422 0.0003 140	-0.03838 0.6526 140	0.04981 0.5589 140	-0.26112 0.0018 141	0.02582 0.7612 141	0.02372 0.7801 141	-0.15311 0.0709 140	0.00644 0.9400 139	0.01937 0.8196 141	1.00000 0.0000 141	0.23810 0.0046 140	0.01887 0.8255 139
X23	0.23279 0.0058 139	0.05163 0.5461 139	0.09841 0.2491 139	-0.13641 0.1080 140	-0.07102 0.4044 140	-0.08527 0.4436 140	0.02374 0.7815 139	0.05912 0.4910 138	-0.00796 0.9256 140	0.23810 0.0046 140	1.00000 0.0000 140	0.07253 0.3979 138

Figure F-2. (Continued, Page 4 of 7)

SCIENCE ACADEMY STUDENT SURVEY RESULTS 13:36 TUESDAY, MAY 6, 1986 14

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	X13	X14	X15	X16	X17	X18	X19	X20	X21	X22	X23	X24
X24	0.18681	-0.19255	0.08512	0.04825	-0.11258	-0.03837	-0.06675	0.04779	0.01072	0.01887	0.07253	1.00000
	0.0282	0.0237	0.3209	0.5727	0.1870	0.6538	0.4367	0.5792	0.9004	0.8255	0.3979	0.0000
	138	138	138	139	139	139	138	137	139	139	138	139
X25	0.09323	0.10413	0.08580	-0.00870	0.15908	0.08894	-0.07166	0.03718	-0.08824	0.09373	0.16191	0.18389
	0.2803	0.2277	0.3206	0.9196	0.0633	0.3014	0.4071	0.6686	0.3052	0.2760	0.0597	0.0328
	136	136	136	137	137	137	136	135	137	137	136	135
X26	0.36473	-0.01930	0.03179	-0.14677	0.14564	0.05555	-0.07345	0.11126	-0.09698	0.26602	0.33942	0.18581
	0.0001	0.8210	0.7093	0.0824	0.0849	0.5129	0.3884	0.1923	0.2526	0.0014	0.0001	0.0285
	140	140	140	141	141	141	140	139	141	141	140	139
X27	0.16204	0.01980	0.13808	0.24815	0.22527	0.23256	-0.02611	0.05109	-0.09590	-0.03239	-0.05369	0.04072
	0.0567	0.8170	0.1050	0.0031	0.0075	0.0057	0.7602	0.5518	0.2597	0.7040	0.5302	0.6354
	139	139	139	140	140	140	139	138	140	140	139	138
X28	0.17602	0.07602	0.18227	0.07329	0.36893	0.33646	0.06695	0.32545	-0.16262	0.17988	0.06097	-0.03012
	0.0389	0.3755	0.0324	0.3912	0.0001	0.0001	0.4353	0.0001	0.0558	0.0341	0.4774	0.7268
	138	138	138	139	139	139	138	137	139	139	138	137

	X25	X26	X27	X28
X1	0.16334	0.03512	0.21574	0.20648
	0.0565	0.6793	0.0105	0.0147
	137	141	140	139
X2	0.06370	0.22058	0.17800	0.26434
	0.4613	0.0088	0.0360	0.0017
	136	140	139	138
X3	0.10650	0.06879	0.22521	0.25317
	0.2172	0.4193	0.0077	0.0027
	136	140	139	138
X4	0.13503	0.12344	0.21004	0.30284
	0.1157	0.1447	0.0127	0.0003
	137	141	140	139
X5	0.07584	-0.08059	0.23557	-0.01357
	0.3802	0.3439	0.0052	0.8745
	136	140	139	138
X6	0.02038	0.06843	-0.13412	-0.06574
	0.8131	0.4201	0.1141	0.4420
	137	141	140	139
X7	0.18346	0.37308	0.18117	0.06718
	0.0319	0.0001	0.0322	0.4320
	137	141	140	139
X8	0.24036	0.34190	0.17483	0.26223
	0.0048	0.0001	0.0395	0.0019
	136	140	139	138

Figure F-2. (Continued, Page 5 of 7)

SCIENCE ACADEMY STUDENT SURVEY RESULTS 13:36 TUESDAY, MAY 6, 1986 15

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	X25	X26	X27	X28
X9	0.17010	-0.00837	0.19506	0.20420
	0.0494	0.9226	0.0229	0.0175
	134	137	136	135
X10	0.17375	0.02724	0.12164	-0.02491
	0.0431	0.7494	0.1537	0.7718
	136	140	139	138
X11	0.23100	0.10230	0.14834	0.18962
	0.0066	0.2274	0.0803	0.0254
	137	141	140	139
X12	-0.01944	0.21825	-0.05768	0.13309
	0.8216	0.0093	0.4984	0.1183
	137	141	140	139
X13	0.09323	0.36473	0.16204	0.17602
	0.2803	0.0001	0.0567	0.0389
	136	140	139	138
X14	0.10413	-0.01930	0.01980	0.07602
	0.2277	0.8210	0.8170	0.3755
	136	140	139	138
X15	0.08580	0.03179	0.13808	0.18227
	0.3206	0.7093	0.1050	0.0324
	136	140	139	138
X16	-0.00870	-0.14677	0.24815	0.07329
	0.9196	0.0824	0.0031	0.3912
	137	141	140	139
X17	0.15908	0.14564	0.22527	0.36893
	0.0633	0.0849	0.0075	0.0001
	137	141	140	139
X18	0.08894	0.05555	0.23256	0.33646
	0.3014	0.5129	0.0057	0.0001
	137	141	140	139
X19	-0.07166	-0.07345	-0.02611	0.06695
	0.4071	0.3884	0.7602	0.4353
	136	140	139	138
X20	0.03718	0.11126	0.05109	0.32545
	0.6686	0.1923	0.5518	0.0001
	135	139	138	137
X21	-0.08424	-0.09698	-0.09590	-0.16262
	0.3052	0.2526	0.2597	0.0558
	137	141	140	139

Figure F-2. (Continued, Page 6 of 7)

SCIENCE ACADEMY STUDENT SURVEY RESULTS 13:36 TUESDAY, MAY 6, 1986 16

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	X25	X26	X27	X28
X22	0.09373	0.26602	-0.03239	0.17988
	0.2760	0.0014	0.7040	0.0341
	137	141	140	139
X23	0.16191	0.33942	-0.05369	0.06097
	0.0597	0.0001	0.5302	0.4774
	136	140	139	138
X24	0.18389	0.18581	0.04072	-0.03012
	0.0328	0.0285	0.6354	0.7268
	135	139	138	137
X25	1.00000	0.20701	0.17551	0.09580
	0.0000	0.0152	0.0410	0.2690
	137	137	136	135
X26	0.20701	1.00000	-0.02419	0.07548
	0.0152	0.0000	0.7766	0.3772
	137	141	140	139
X27	0.17551	-0.02419	1.00000	0.19562
	0.0410	0.7766	0.0000	0.0215
	136	140	140	138
X28	0.09580	0.07548	0.19562	1.00000
	0.2690	0.3772	0.0215	0.0000
	135	139	138	139

Figure F-2. (Continued, Page 7 of 7)

FIGURE F-3

CORRELATION OF SURVEY ITEMS WITH STUDENT GRADE POINT AVERAGES

SCIENCE ACADEMY STUDENT SURVEY RESULTS—CORR WITH GPA 8
7:47 TUESDAY, MAY 20, 1986

GRADE=9

VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMUM
X26	64	2.82812500	0.91815356	181.00000000	1.00000000	5.00000000
X27	63	1.11111111	0.31679398	70.00000000	1.00000000	2.00000000
X28	64	2.75000000	1.29712747	176.00000000	1.00000000	5.00000000

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	GPA
X1	0.05050 0.6872 66
X2	-0.04370 0.7276 66
X3	-0.03002 0.8109 66
X4	-0.12091 0.3335 66
X5	-0.09085 0.4717 65
X6	0.32941 0.0069 66
X7	0.22851 0.0650 66
X8	0.38873 0.0013 66
X9	0.10823 0.3908 65
X10	0.03149 0.8018 66

Figure F-3. CORRELATION OF SURVEY ITEMS WITH STUDENT GRADE POINT AVERAGES. (Page 1 of 8)

GRADE=9

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	GPA
X11	0.04920 0.6948 66
X12	0.19374 0.1191 66
X13	0.25711 0.0372 66
X14	0.15062 0.2274 66
X15	0.15316 0.2232 65
X16	-0.00381 0.9758 66
X17	-0.07984 0.5240 66
X18	0.10295 0.4108 66
X19	-0.10406 0.4057 66
X20	0.17138 0.1688 66
X21	-0.30644 0.0123 66
X22	0.07059 0.5794 64
X23	0.32251 0.0093 64

Figure F-3. (Continued, Page 2 of 8), Grade 9.

SCIENCE ACADEMY STUDENT SURVEY RESULTS--CORR WITH GPA 10
7:47 TUESDAY, MAY 20, 1986

GRADE=9

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	GPA
X24	0.22783 0.0702 64
X25	-0.06271 0.5193 63
X26	0.20166 0.1101 64
X27	-0.20229 0.1118 63
X28	0.04963 0.6969 64

85.41

Figure F-3. (Continued, Page 3 of 8), Grade 9.

SCIENCE ACADEMY STUDENT SURVEY RESULTS--CORR WITH GPA

GRADE=10

VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMUM
X26	28	3.07142857	1.05157981	86.00000000	1.00000000	5.00000000
X27	28	1.14285714	0.35634832	32.00000000	1.00000000	2.00000000
X28	28	2.92857143	1.05157981	82.00000000	1.00000000	5.00000000

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	GPA
X1	-0.01898 0.9236 28
X2	-0.28395 0.1431 28
X3	0.12565 0.5241 28
X4	0.07573 0.7017 28
X5	-0.58147 0.0012 28
X6	0.41802 0.0269 28
X7	0.33406 0.0823 28
X8	0.14277 0.4775 27
X9	-0.36285 0.0685 26
X10	0.17141 0.3831 28

Figure F-3. (Continued, Page 4 of 8), Grade 10.

SCIENCE ACADEMY STUDENT SURVEY RESULTS--CORR WITH GPA 13
7:47 TUESDAY, MAY 20, 1986

GRADE=10

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	GPA
X11	-0.00315 0.9873 28
X12	0.27049 0.1639 28
X13	0.42144 0.0286 27
X14	0.17279 0.3888 27
X15	-0.05854 0.7673 28
X16	-0.58897 0.0010 28
X17	0.19441 0.3215 28
X18	0.16114 0.4127 28
X19	-0.22449 0.2603 27
X20	-0.01407 0.9456 26
X21	-0.01473 0.9407 28
X22	0.50102 0.0066 28
X23	0.46761 0.0121 28

Figure F-3. (Continued, Page 5 of 8), Grade 10.

SCIENCE ACADEMY STUDENT SURVEY RESULTS--CORR WITH GPA 14
7:47 TUESDAY, MAY 20, 1986

GRADE=10

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / NUMBER OF OBSERVATIONS

	GPA
X24	-0.08467 0.6684 28
X25	0.33172 0.0910 27
X26	0.42771 0.0232 28
X27	-0.13561 0.4914 28
X28	0.09406 0.6340 28

Figure F-3. (Continued, Page 6 of 8), Grade 10.

SCIENCE ACADEMY STUDENT SURVEY RESULTS--CORR WITH GPA 16

GRADE=11 7:47 TUESDAY, MAY 20, 1986

VARIABLE	N	MEAN	STD DEV	SUM	MINIMUM	MAXIMUM
X26	6	2.83333333	1.32916014	17.00000000	2.00000000	5.00000000
X27	6	1.00000000	0	6.00000000	1.00000000	1.00000000
X28	6	1.50000000	0.83666003	9.00000000	1.00000000	3.00000000

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / N = 6

	GPA
X1	-0.14284 0.7872
X2	-0.07732 0.8842
X3	0.03079 0.9538
X4	-0.57600 0.2316
X5	-0.78717 0.0631
X6	0.68375 0.1342
X7	0.35211 0.4937
X8	0.68375 0.1342
X9	-0.71493 0.1103
X10	0.67145 0.1442
X11	-0.63427 0.1762
X12	0.90156 0.0141
X13	-0.01128 0.9831

Figure F-3. (Continued, Page 7 of 8), Grade 11.

SCIENCE ACADEMY STUDENT SURVEY RESULTS--CORR WITH GPA 17
7:47 TUESDAY, MAY 20, 1986

GRADE=11

CORRELATION COEFFICIENTS / PROB > |R| UNDER HO:RHO=0 / N = 6

	GPA
X14	-0.23[illegible]68 0.6474
X15	0.43111 0.3934
X16	-0.46817 0.3491
X17	0.45009 0.3704
X18	0.23514 0.6538
X19	-0.42329 0.4030
X20	0.20415 0.6980
X21	-0.70194 0.1200
X22	0.81570 0.0478
X23	0.27001 0.6048
X24	0.48706 0.3272
X25	0.02670 0.9600
X26	0.37001 0.4703
X27	0.00000 1.0000
X28	-0.12841 0.8084

Figure F-3. (Continued, Page 8 of 8), Grade 11.

85.41 Attachment F-1

AUSTIN INDEPENDENT SCHOOL DISTRICT
Department of Management Information
Office of Research and Evaluation

December 18, 1985

To: Persons Addressed

From: Margie Gaines mlg

Subject: Survey Item Review

Enclosed are draft copies of the Magnet School Program administrator and teacher survey items and the survey items for Science Academy students (to secondary persons addressed) for your review. Please note any comments or suggestions on the copies as you review the survey items.

Prompt review of the items is necessary to ensure inclusion of items on the districtwide surveys that will be distributed in early February. Therefore, it is necessary that all comments be submitted by calling me at ORE (458-5496) by **Friday, December 20, 1985**, if at all possible. I realize that this is very short notice, but if it waits until January, it may too late to include items on the survey that would be of interest to the evaluation.

MG:mlg
Enclosure

Approved: D.D
Director
Department of Management Information

Persons Addressed:

Timy Baranoff
John Friedrick
Freda Holley
Gloria Williams

ATTACHMENT F-2

DIRECTIONS FOR ADMINISTERING
THE SCIENCE ACADEMY STUDENT SURVEY

85.41

Attachment F-2
(Page 1 of 2)

AUSTIN INDEPENDENT SCHOOL DISTRICT
Department of Management Information
Office of Research and Evaluation

April 14, 1986

TO: John Friedrick

FROM: Margie Gaines MG

SUBJECT: Science Academy Student Surveys

As you recall, it was decided that a Science Academy Student Survey would provide information useful to the Science Academy, the Magnet Schools evaluation, and the implementation of the Kealing Science Magnet. The survey questions are those that you reviewed and approved several months ago. Because Science Academy students are concentrated in zero hour courses, it was determined that it would be easiest to administer a survey separate from the districtwide student survey and to do it during the zero hour period.

Enclosed is a copy of the set of materials distributed to the teachers listed below.

MG:tr
Enclosures

Approved: _____
Director
Department of Management Information

Approved: _____
Assistant Superintendent, Secondary Education

cc: Gonzalo Garza
Dorothy Orebo
Gloria Williams
Ed Davis
Mary Ann Didomenico
Leila Dumas
Margaret Eichen
Dave Journeay
Sandra Seymour
William Spaulding
Joe Wilkins

AUSTIN INDEPENDENT SCHOOL DISTRICT
Department of Management Information
Office of Research and Evaluation

1986 Questions for Science Academy Students

Directions for Administering

TO THE TEACHER

You have received a stack of surveys for Science Academy students marked on the outside of the packet with the course number of the class where you will administer this survey. Please have all your students complete the survey at the beginning of the designated period, one day this week. Students who are absent will not be given make ups, and if there are any students who are not in the Science Academy in your class, they should not complete the survey. After the surveys are completed, please return them later the same day, through school mail, to Margie Gaines at ORE, Box 79.

To administer the survey, please read the following instructions aloud to students. You MAY help any student who does not understand.

TO THE STUDENT

You are about to complete a survey that all Science Academy students are completing this week to get information for the District about the magnet school and students' opinions. Most of you may have already completed a survey this year. How students respond to the questions may be reported, but your name will not ever be connected with the answers you give about your opinions.

Please read each item carefully, and raise your hand and ask me if you don't understand something. This is not a test, but please fill out your form quietly and without discussion. What YOU think is what is important on YOUR survey.

For each item there is a number at the right of the paper, that matches the item number. Read the item, choose the answer you want, then bubble in the letter of the answer you choose to the right of the item number at the right side of the page. Choose one answer for each item.

Sit quietly when you have completed your survey, so others can finish theirs. Thank you for helping.

ATTACHMENT F-3

SAS PROGRAM PERFORMING THE CORRELATION ANALYSES
ON SURVEY RESPONSES

```
1       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    13:59 TUESDAY, MAY 20, 1986

NOTE: THE JOB EV7SASMG HAS BEEN RUN UNDER RELEASE 82.4 OF SAS
      AT AUSTIN INDEPENDENT SCHOOL DISTRICT (01986001).

NOTE: CPUID   VERSION = FF  SERIAL = 013553  MODEL = 4341 .

NOTE: NO OPTIONS SPECIFIED.

1          DATA SURVEY;                                                    00000110
2               INPUT (STUID X1-X28 TCHR LIKE DISLIKE)                     00000120
3                    (@1-7 @8 28*1, @37 3*1.);                             00000130
4                                                                          00000140
5            * TCHR:                                                       00000150
6                  1=DAVIS                                                 00000160
7                  2=DIDOMENICO                                            00000170
8                  3=DUMAS                                                 00000180
9                  4=EICHEN                                                00000190
10                 5=JOURNEAY                                              00000200
11                 6=SEYMOUR                                               00000210
12                 7=SPAULDING                                             00000220
13                 8=WILKINS;                                              00000230
14                                                                         00000240
15           * VALUES OF LIKE/DISLIKE:  0=NO COMMENT 1=COMMENT;            00000250
16                                                                         00000260
17         CARDS;                                                          00000270

NOTE: DATA SET USER010.SURVEY HAS 143 OBSERVATIONS AND 32 VARIABLES. 30 OBS/TRK.
NOTE: THE DATA STATEMENT USED 3.65 SECONDS AND 330K.

161        ;                                                               00000290
162                                                                        00000300
163        PROC CORR;                                                      00000310
164          VAR X1-X28;                                                   00000320
165                                                                        00000330

NOTE: THE PROCEDURE CORR USED 5.91 SECONDS AND 348K AND PRINTED PAGES 1 TO 8.

166        DATA ENRLLMNT;                                                  00000340
167        INPUT STUID @1-7 SEX @ GRADE 9-10 ETH 11 STATUS 12              00000350
168             LASTNAME @15-25 NAME @27-37 GPA 39-45;                     00000360
169                                                                        00000370
170        CARDS;                                                          00000380

NOTE: DATA SET USER010.ENRLLMNT HAS 185 OBSERVATIONS AND 8 VARIABLES. 108 OBS/TRK.
NOTE: THE DATA STATEMENT USED 2.80 SECONDS AND 306K.

356        ;                                                               00000400
357                                                                        00000410
358          TITLE 'SCIENCE ACADEMY STUDENT SURVEY RESULTS--CORR WITH GPA';00000420
359                                                                        00000430
360        PROC SORT DATA=SURVEY;                                          00000440
361        BY STUID;                                                       00000450
362                                                                        00000460

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.SURVEY HAS 143 OBSERVATIONS AND 32 VARIABLES. 30 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 18.94 SECONDS AND 292K.
```

```
2       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    13:59 TUESDAY, MAY 20, 1986

363         PROC SORT DATA=ENRLLMNT;                                        00000470
364         BY STUID;                                                       00000480
365                                                                         00000490

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.ENRLLMNT HAS 185 OBSERVATIONS AND 8 VARIABLES. 108 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 11.39 SECONDS AND 292K.

366         DATA CONNECT;                                                   00000500
367         MERGE SURVEY (IN=INSURVEY) ENRLLMNT;                            00000510
368            BY STUID;                                                    00000520
369            IF INSURVEY=1;                                               00000530
370                                                                         00000540

NOTE: DATA SET USER010.CONNECT HAS 143 OBSERVATIONS AND 39 VARIABLES. 24 OBS/TRK.
NOTE: THE DATA STATEMENT USED 5.08 SECONDS AND 314K.

371         PROC PRINT DATA=CONNECT;                                        00000550
372                                                                         00000560

NOTE: THE PROCEDURE PRINT USED 5.65 SECONDS AND 382K AND PRINTED PAGES 9 TO 11.

373         PROC SORT DATA=CONNECT;                                         00000570
374            BY GRADE;                                                    00000580
375                                                                         00000590
376                                                                         00000600

WARNING: SORTSIZE VALUE IS LESS THAN THE MINIMUM
         REQUIRED BY YOUR SYSTEM SORT UTILITY.
         THE SORT UTILITY MAY TERMINATE ABNORMALLY.
NOTE: DATA SET USER010.CONNECT HAS 143 OBSERVATIONS AND 39 VARIABLES. 24 OBS/TRK.
NOTE: THE PROCEDURE SORT USED 14.50 SECONDS AND 292K.

377         PROC CORR;                                                      00000610
378            VAR GPA; WITH X1-X28;                                        00000620
379            BY GRADE;                                                    00000630
380                                                                         00000640

NOTE: THE PROCEDURE CORR USED 6.51 SECONDS AND 324K AND PRINTED PAGES 12 TO 25.

381         PROC UNIVARIATE DATA=CONNECT;                                   00000650
382            VAR GPA;                                                     00000660
383            BY GRADE;                                                    00000670
384                                                                         00000680
385                                                                         00000690

NOTE: THE PROCEDURE UNIVARIATE USED 3.19 SECONDS AND 380K AND PRINTED PAGES 26 TO 29.

386         PROC DELETE DATA=SURVEY;                                        00000700

NOTE: THE PROCEDURE DELETE USED 1.57 SECONDS AND 284K.

387         PROC DELETE DATA=ENRLLMNT;                                      00000710

NOTE: THE PROCEDURE DELETE USED 1.33 SECONDS AND 284K.
```

```
3       S A S   L O G   VSE SAS 82.4        VSE 3.1 JOB EV7SASMG                    13:59 TUESDAY, MAY 20, 1986

388         PROC DELETE DATA=CONNECT;                                          00000720

NOTE: THE PROCEDURE DELETE USED 1.29 SECONDS AND 284K.
NOTE: SAS USED 382K MEMORY.

NOTE: SAS INSTITUTE INC.
      SAS CIRCLE
      PO BOX 8000
      CARY, N.C.  27511-8000
```

SCIENCE ACADEMY STUDENT SURVEY:
STUDENT COMMENTS

Topic of Response:	What do you like best about the Science Academy?	What do you dislike about the Science Academy?
Academic:	"I like the classes they offer and the fact that they give you a chance to get finished with your basic science courses and take more." "The S.A. offers lots of fun and interesting experiences as well as a challenge."	"Too much homework for the amount of time I have." "I came to the Science Academy expecting and willing to work for A's. Instead, I end up failing my regular courses to pass my Science Academy courses."
Social:	"I like the other students." "I like the atmosphere! The people are friendly and nice."	"The long hours and no sleep." "I dislike the long bus ride and having class so early." "...alienation from events which other LBJ students are allowed to attend (pep rally, symphony)."
Equipment:	"I like the availability of computers." "(I like) the privileges in using such machines as the electron microscope and high level computers."	"I hate (that) we haven't received all our equipment..." "Inaccessibility and restrictions of computer room."
Teachers:	"I like the teachers of the S.A." "I feel I can be friends with the teachers as well as (be) their student." "I like the teachers and their willingness to answer questions in detail."	"I wish the teachers would go slower." "I think some teachers expect too much from somebody if they are in the Science Academy."
Administration:	"I like _____ because (s)he tries to get involved without being nosy." "I like _____ because (s)he is helpful."	"I dislike the way some teachers and the administrators currently deal with problems." "I think the Science Academy is either overrated or not living up to its standards!"

Magnet Schools Assistance Program

Appendix G

ADMINISTRATOR AND TEACHER SURVEYS

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Magnet Schools Assistance Program

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FIGURE G-2: Administrator Survey Questions and Response Rates. 156

ADMINISTRATOR AND TEACHER SURVEYS

Purpose

Some questions on the spring districtwide surveys were addressed to administrators and teachers at magnet school campuses and also to a random selection of secondary math and science teachers. Responses provided information for the following decision questions and information need:

Decision Question D1. Should the elementary magnet programs be continued as they are, modified, expanded, or discontinued?

Decision Question D3. Should the Science Academy of Austin magnet program be continued as it is, modified, expanded, or discontinued?

Information Need 5. What information will be helpful for the planning of a junior high science magnet program at Kealing?

Although no specific evaluation questions were asked which would have been directly answered by the survey responses, the opinions expressed by the teachers and administrators about magnet program issues provide additional information useful to decision makers.

Procedure

The Office of Research and Evaluation conducts annual surveys of approximately half of all teachers and administrators in AISD. More detailed procedures about the survey development and administration can be found in ORE Districtwide Surveys 1983-84, ORE Pub. No. 83.69. The magnet evaluator developed questions to be included in the survey that addressed the magnet programs. The following steps were taken in developing the items:

1. During initial meetings and interviews with the program staff, various issues and concerns were expressed that were noted for possible survey items.

2. Survey items were drafted and sent to program staff on December 18 for review along with student survey items. (See Attachment F-1 for the letter that was sent.)

3. Based on the feedback received, items were revised or deleted.

4. In early February, the items and specifications designating to whom certain items should be sent were given to the evaluation associate who conducts the survey.

5. Surveys were sent out in April, and results of the teacher responses were ready May 29.

Sample

A total of 29 questions related to magnet programs were distributed. Not all teachers received all the questions. Seventy-nine teachers at each of the six elementary and one junior high magnet campus received eight questions. The four Science Academy teachers surveyed received the same eight questions and an additional 21 questions about the Science Academy. The other teachers at LBJ and a selection of math and science teachers received either three or seven questions. Thirteen administrators at the eight campuses each received the same eight questions about the magnet programs that 83 teachers received.

Analyses

The number and percentage of respondents answering each option were computed by a District Priorities programmer/analyst.

Results

Response Rate

Of the 83 teachers at the eight magnet campuses who received items, 71 (85.5%) responded. Three (75%) of the four science Academy teachers surveyed responded. Of the 212 LBJ teachers and science and math secondary teachers who received three questions, 175 (82.5%) returned surveys. Of the sample of 102 LBJ and secondary math and science teachers who were given four items, 87 (81%) responded. Of the 13 administrators surveyed, 12 (92%) responded.

Responses

Figure G-1 shows the responses for each item from the teachers. Figure G-2 shows the administrator responses for each item. In general, the teacher responses suggested that:

- More secondary teachers agreed (44%) than disagreed (31%) that there should be more math and science at the junior high level.
- More junior high teachers (82%) than senior high teachers (63%) thought that attending a junior high science magnet would be an advantage for Science Academy bound students. However, they disagreed (62%) that such a program should be a prerequisite for the Science Academy.
- Junior and senior high teachers showed a difference of opinion on whether students entering junior high are too young to consider specializing in science. Junior high teachers (65%) thought they are old enough, but senior high teachers (50%) thought they are too young.

- Teachers perceived certain benefits of the programs. Eighty percent believed student interests were satisfied. Seventy percent of the elementary teachers and 100% of the secondary teachers agreed their own motivation had increased, despite the majority (52%) opinion that the programs created extra work for the teachers. Overall, 53% agreed they had flexibility in teaching the curriculum.

The Science Academy teachers received some of the same or similar questions that the students were asked (See Appendix F). In general, comparisons between teachers and students of the Science Academy revealed that:

- Compared to 33% of the teachers who thought the curriculum was difficult, 49% of the students thought it tended to be difficult. Two-thirds of the teachers (67%) versus 40% of the students thought the level of difficulty was just right.

- All the teachers and 71% of the students thought that the Science Academy provided the students with sufficient opportunity to study topics of interest to the individual.

- Nearly one-third (30%) of the students agreed that the teachers expected too much of them, whereas none of the teachers thought the expectations were too great.

- The teachers thought the students were poorly prepared in study skills, and all agreed skills needed improvement. On the other hand, students thought they were adequately prepared in study skills, but 56% agreed they wanted to learn how to improve their skills.

- Sixty-eight percent of the elementary and secondary teachers thought a junior high science magnet would be advantageous to students intending to go to the Science Academy, but only 46% of the students thought it would help.

The administrators' responses suggested the following:

- Administrators perceived the benefits of the programs in much the same way as the teachers. Nearly 92% thought the students' interests were being satisfied, and 50% thought teachers had greater flexibility in teaching the curriculum. More administrators (67%) than teachers thought the programs created extra work for teachers.

- Increased motivation due to the presence of the magnet school program was reported by 67% of the administrators.

- Seventy-five percent agreed they were genuinely concerned about the magnet programs, and 83% thought they should continue even if federal funding was not available.

Discussion

Teachers and administrators, for the most part, were very similar in their responses to the eight questions they all received. The two questions for which the largest discrepancies appeared, regarding the contributions of advisory committees and the difficulty level of the curriculum, may reflect the differences between the groups in the level of involvement or awareness about those issues. (See Figures G-1 and G-2 for the response rates.)

Similarities and differences between teachers and administrators at the elementary or secondary levels may not be reliable or necessarily reflect the opinions of teachers or administrators not surveyed because of the small number of administrators and secondary teachers surveyed. Any comparisons between the groups would be tentative at best.

Tentative comparisons between the responses of teachers and students were made, but again, caution must be used in interpreting or generalizing the responses because only three of the eight Science Academy teachers provided responses.

Comparisons between teachers and students revealed somewhat different overall opinions. Teachers, on the average, were more positive about what the Science Academy had to offer in terms of opportunities and benefits, and they did not think that the Academy received too much attention or too many special resources. Students' opinions, on the other hand, reflected some disappointment, which was especially noticeable from their open-ended comments. (Appendix F discusses student responses in greater detail.) For the most part, however, students were positive about their experiences. There did seem to be some discrepancy between what teachers and students considered adequate subject area preparation or realistic expectations of student performance, but that is to be expected.

In conclusion, both teachers and administrators were highly supportive of their magnet programs and thought the benefits to the teachers and students outweighed any disadvantage incurred, such as extra work. Despite the certainty that there will not be any federal support in 1986-87 and the possibility of little or no local funds, both groups thought that the programs should continue, if possible.

Reference

Jackson, E. (1984) ORE Districtwide Surveys 1983-84 (ORE Pub. No. 83.69). Austin, TX: Austin Independent School District, Office of Research and Evaluation.

FIGURE G-1

TEACHER SURVEY QUESTIONS AND RESPONSE RATES

11. MAGNET PROGRAMS GIVE TEACHERS GREATER FLEXIBILITY IN TEACHING THE CURRICULUM.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	70	21 30.0%	16 22.9%	17 24.3%	12 17.1%	4 5.7%
ELEMENTARY	64	18 28.1%	13 20.3%	17 26.6%	12 18.8%	4 6.3%
JR HIGH	3	1 33.3%	2 66.7%	0 0.0%	0 0.0%	0 0.0%
HIGH SCH	3	2 66.7%	1 33.3%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	6	3 50.0%	3 50.0%	0 0.0%	0 0.0%	0 0.0%

12. THE MAGNET PROGRAM AT MY CAMPUS SATISFIES STUDENTS WITH INTERESTS IN THE PROGRAM'S AREA OF FOCUS.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	71	36 50.7%	21 29.6%	9 12.7%	4 5.6%	1 1.4%
ELEMENTARY	65	32 49.2%	19 29.2%	9 13.8%	4 6.2%	1 1.5%
JR HIGH	3	2 66.7%	1 33.3%	0 0.0%	0 0.0%	0 0.0%
HIGH SCH	3	2 66.7%	1 33.3%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	6	4 66.7%	2 33.3%	0 0.0%	0 0.0%	0 0.0%

13. ADVISORY COMMITTEES (FORMAL OR INFORMAL) HAVE MADE BENEFICIAL CONTRIBUTIONS TO THE MAGNET PROGRAM.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	70	6 8.6%	30 42.9%	25 35.7%	8 11.4%	1 1.4%
ELEMENTARY	64	6 9.4%	27 42.2%	22 34.4%	8 12.5%	1 1.6%
JR HIGH	3	0 0.0%	0 0.0%	3 100.0%	0 0.0%	0 0.0%
HIGH SCH	3	0 0.0%	3 100.0%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	6	0 0.0%	3 50.0%	3 50.0%	0 0.0%	0 0.0%

Figure G-1. TEACHER SURVEY QUESTIONS AND RESPONSE RATES. (Page 1 of 10)

14. TEACHING MAGNET SCHOOL CLASSES CREATES EXTRA WORK FOR TEACHERS.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	71	17 23.9%	20 28.2%	12 16.9%	16 22.5%	6 8.5%
ELEMENTARY	65	15 23.1%	17 26.2%	12 18.5%	16 24.6%	5 7.7%
JR HIGH	3	0 0.0%	2 66.7%	0 0.0%	0 0.0%	1 33.3%
HIGH SCH	3	2 66.7%	1 33.3%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	6	2 33.3%	3 50.0%	0 0.0%	0 0.0%	1 16.7%

15. THE MAGNET PROGRAM AT MY CAMPUS SHOULD CONTINUE, EVEN IF FEDERAL FUNDING IS NOT AVAILABLE.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	72	40 55.6%	17 23.6%	12 16.7%	3 4.2%	0 0.0%
ELEMENTARY	66	36 54.5%	15 22.7%	12 18.2%	3 4.5%	0 0.0%
JR HIGH	3	1 33.3%	2 66.7%	0 0.0%	0 0.0%	0 0.0%
HIGH SCH	3	3 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	6	4 66.7%	2 33.3%	0 0.0%	0 0.0%	0 0.0%

16. I AM GENUINELY CONCERNED ABOUT THE MAGNET PROGRAMS SUCCESS.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	71	24 33.8%	27 38.0%	13 18.3%	4 5.6%	3 4.2%
ELEMENTARY	65	20 30.8%	26 40.0%	12 18.5%	4 6.2%	3 4.6%
JR HIGH	3	1 33.3%	1 33.3%	1 33.3%	0 0.0%	0 0.0%
HIGH SCH	3	3 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	6	4 66.7%	1 16.7%	1 16.7%	0 0.0%	0 0.0%

Figure G-1. (Continued, Page 2 of 10)

17. HAVING A MAGNET PROGRAM AT MY CAMPUS HAS INCREASED MY MOTIVATION.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	70	26 37.1%	23 32.9%	16 22.9%	4 5.7%	1 1.4%
ELEMENTARY	64	23 35.9%	20 31.3%	16 25.0%	4 6.3%	1 1.6%
JR HIGH	3	1 33.3%	2 66.7%	0 0.0%	0 0.0%	0 0.0%
HIGH SCH	3	2 66.7%	1 33.3%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	6	3 50.0%	3 50.0%	0 0.0%	0 0.0%	0 0.0%

18. THE SCIENCE ACADEMY CURRICULUM MOTIVATES STUDENTS TO LEARN.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	3	0 0.0%	3 100.0%	0 0.0%	0 0.0%	0 0.0%
HIGH SCH	3	0 0.0%	3 100.0%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	3	0 0.0%	3 100.0%	0 0.0%	0 0.0%	0 0.0%

19. SCIENCE ACADEMY STUDENTS HAVE SUFFICIENT OPPORTUNITIES TO PURSUE ON THEIR OWN AND/OR IN DEPTH (AS AN EXTENSION OF THEIR CLASSROOM STUDIES) TOPICS OR IDEAS THAT INTEREST THEM.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	3	0 0.0%	3 100.0%	0 0.0%	0 0.0%	0 0.0%
HIGH SCH	3	0 0.0%	3 100.0%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	3	0 0.0%	3 100.0%	0 0.0%	0 0.0%	0 0.0%

Figure G-1. (Continued, Page 3 of 10)

20. BEING IN A PROGRAM WITH OTHERS WHO HAVE COMMON INTERESTS MOTIVATES STUDENTS TO LEARN.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	3	1 33.3%	1 33.3%	1 33.3%	0 0.0%	0 0.0%
HIGH SCH	3	1 33.3%	1 33.3%	1 33.3%	0 0.0%	0 0.0%
SECONDARY	3	1 33.3%	1 33.3%	1 33.3%	0 0.0%	0 0.0%

21. SCIENCE ACADEMY STUDENTS NEED TO IMPROVE THEIR LEARNING AND STUDY SKILLS.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	3	0 0.0%	3 100.0%	0 0.0%	0 0.0%	0 0.0%
HIGH SCH	3	0 0.0%	3 100.0%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	3	0 0.0%	3 100.0%	0 0.0%	0 0.0%	0 0.0%

22. THERE IS A POSSIBILITY THAT SCIENCE ACADEMY STUDENTS WILL BECOME SCIENCE SPECIALISTS AT THE COST OF ACHIEVEMENT IN OTHER AREAS.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	3	0 0.0%	0 0.0%	1 33.3%	2 66.7%	0 0.0%
HIGH SCH	3	0 0.0%	0 0.0%	1 33.3%	2 66.7%	0 0.0%
SECONDARY	3	0 0.0%	0 0.0%	1 33.3%	2 66.7%	0 0.0%

Figure G-1. (Continued, Page 4 of 10)

23. ACADEMY TEACHERS AND STAFF EXPECT TOO MUCH OF A STUDENT IN ORDER FOR A STUDENT TO REMAIN IN THE PROGRAM.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	3	0 0.0%	0 0.0%	1 33.3%	2 66.7%	0 0.0%
HIGH SCH	3	0 0.0%	0 0.0%	1 33.3%	2 66.7%	0 0.0%
SECONDARY	3	0 0.0%	0 0.0%	1 33.3%	2 66.7%	0 0.0%

24. THE ACADEMY STIMULATES INTEREST AND MOTIVATION IN STUDENTS TO PURSUE POST-SECONDARY EDUCATION.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	3	2 66.7%	1 33.3%	0 0.0%	0 0.0%	0 0.0%
HIGH SCH	3	2 66.7%	1 33.3%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	3	2 66.7%	1 33.3%	0 0.0%	0 0.0%	0 0.0%

25. PARTICIPATION IN A JUNIOR HIGH SCIENCE MAGNET PROGRAM WOULD BE A DISTINCT ADVANTAGE FOR STUDENTS WHO PLAN TO APPLY TO THE SCIENCE ACADEMY.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	174	43 24.7%	76 43.7%	37 21.3%	9 5.2%	9 5.2%
JR HIGH	51	20 39.2%	22 43.1%	7 13.7%	0 0.0%	2 3.9%
HIGH SCH	123	23 18.7%	54 43.9%	30 24.4%	9 7.3%	7 5.7%
SECONDARY	174	43 24.7%	76 43.7%	37 21.3%	9 5.2%	9 5.2%

Figure G-1. (Continued, Page 5 of 10)

26. PARTICIPATION IN A JUNIOR HIGH SCIENCE MAGNET PROGRAM SHOULD BE A PREREQUISITE FOR APPLYING TO THE SCIENCE ACADEMY.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	175	3 1.7%	21 12.0%	42 24.0%	63 36.0%	46 26.3%
JR HIGH	51	1 2.0%	7 13.7%	14 27.5%	18 35.3%	11 21.6%
HIGH SCH	124	2 1.6%	14 11.3%	28 22.6%	45 36.3%	35 28.2%
SECONDARY	175	3 1.7%	21 12.0%	42 24.0%	63 36.0%	46 26.3%

27. TOO MANY SPECIAL RESOURCES ARE LAVISHED ON THE SCIENCE ACADEMY.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	175	15 8.6%	16 9.1%	82 46.9%	48 27.4%	14 8.0%
JR HIGH	51	0 0.0%	5 9.8%	21 41.2%	20 39.2%	5 9.8%
HIGH SCH	124	15 12.1%	11 8.9%	61 49.2%	28 22.6%	9 7.3%
SECONDARY	175	15 8.6%	16 9.1%	82 46.9%	48 27.4%	14 8.0%

28. STUDENTS SHOULD HAVE MORE SCIENCE AND MATH AT THE JUNIOR HIGH LEVEL.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	87	12 13.8%	26 29.9%	22 25.3%	23 26.4%	4 4.6%
JR HIGH	51	8 15.7%	16 31.4%	7 13.7%	17 33.3%	3 5.9%
HIGH SCH	36	4 11.1%	10 27.8%	15 41.7%	6 16.7%	1 2.8%
SECONDARY	87	12 13.8%	26 29.9%	22 25.3%	23 26.4%	4 4.6%

Figure G-1. (Continued, Page 6 of 10)

29. STUDENTS ENTERING JUNIOR HIGH SCHOOL ARE TOO YOUNG TO THINK ABOUT SPECIALIZING IN SCIENCE.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	87	5 5.7%	25 28.7%	16 18.4%	37 42.5%	4 4.6%
JR HIGH	51	2 3.9%	10 19.6%	6 11.8%	31 60.8%	2 3.9%
HIGH SCH	36	3 8.3%	15 41.7%	10 27.8%	6 16.7%	2 5.6%
SECONDARY	87	5 5.7%	25 28.7%	16 18.4%	37 42.5%	4 4.6%

30. THE SCIENCE ACADEMY ATTRACTS THE BEST AND BRIGHTEST STUDENTS AWAY FROM THEIR HOME SCHOOLS.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	86	5 5.8%	21 24.4%	22 25.6%	31 36.0%	7 8.1%
JR HIGH	51	4 7.8%	16 31.4%	17 33.3%	13 25.5%	1 2.0%
HIGH SCH	35	1 2.9%	5 14.3%	5 14.3%	18 51.4%	6 17.1%
SECONDARY	86	5 5.8%	21 24.4%	22 25.6%	31 36.0%	7 8.1%

31. THE SCIENCE ACADEMY RECEIVES MORE ATTENTION THAN IT DESERVES.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	87	2 2.3%	6 6.9%	30 34.5%	35 40.2%	14 16.1%
JR HIGH	51	0 0.0%	4 7.8%	17 33.3%	24 47.1%	6 11.8%
HIGH SCH	36	2 5.6%	2 5.6%	13 36.1%	11 30.6%	8 22.2%
SECONDARY	87	2 2.3%	6 6.9%	30 34.5%	35 40.2%	14 16.1%

Figure G-1. (Continued, Page 7 of 10)

66.THE SCIENCE ACADEMY CURRICULUM IS:
A.TOO EASY B.EASY C.JUST RIGHT D.DIFFICULT
E.TOO DIFFICULT

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	3	0 0.0%	0 0.0%	2 66.7%	1 33.3%	0 0.0%
HIGH SCH	3	0 0.0%	0 0.0%	2 66.7%	1 33.3%	0 0.0%
SECONDARY	3	0 0.0%	0 0.0%	2 66.7%	1 33.3%	0 0.0%

67.THE DIFFICULTY LEVEL OF THE MAGNET CURRICULUM IS:
A.TOO DIFFICULT B.DIFFICULT C.JUST RIGHT D.EASY
E.TOO EASY F.DON'T KNOW

	NUMBER OF RESPONSES	A	B	C	D	E	F
TOTALS	68	0 0.0%	5 7.4%	43 63.2%	2 2.9%	2 2.9%	16 23.5%
ELEMENTARY	62	0 0.0%	4 6.5%	38 61.3%	2 3.2%	2 3.2%	16 25.8%
JR HIGH	3	0 0.0%	0 0.0%	3 100.0%	0 0.0%	0 0.0%	0 0.0%
HIGH SCH	3	0 0.0%	1 33.3%	2 66.7%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	6	0 0.0%	1 16.7%	5 83.3%	0 0.0%	0 0.0%	0 0.0%

94.HOW WELL WERE ENTERING SCIENCE ACADEMY STUDENTS PREPARED IN SCIENCE?
A.NOT AT ALL C.ADEQUATELY E.VERY WELL
B.POORLY D.WELL F.DON'T KNOW

	NUMBER OF RESPONSES	A	B	C	D	E	F
TOTALS	3	0 0.0%	0 0.0%	2 66.7%	0 0.0%	0 0.0%	1 33.3%
HIGH SCH	3	0 0.0%	0 0.0%	2 66.7%	0 0.0%	0 0.0%	1 33.3%
SECONDARY	3	0 0.0%	0 0.0%	2 66.7%	0 0.0%	0 0.0%	1 33.3%

Figure G-1. (Continued, Page 8 of 10)

95.HOW WELL WERE ENTERING SCIENCE ACADEMY STUDENTS PREPARED IN MATHEMATICS?
A.NOT AT ALL C.ADEQUATELY E.VERY WELL
B.PUORLY D.WELL F.DON'T KNOW

	NUMBER OF RESPONSES	A	B	C	D	E	F
TOTALS	3	0	0	2	1	0	0
		0.0%	0.0%	66.7%	33.3%	0.0%	0.0%
HIGH SCH	3	0	0	2	1	0	0
		0.0%	0.0%	66.7%	33.3%	0.0%	0.0%
SECONDARY	3	0	0	2	1	0	0
		0.0%	0.0%	66.7%	33.3%	0.0%	0.0%

96.HOW WELL WERE ENTERING SCIENCE ACADEMY STUDENTS PREPARED IN READING?
A.NOT AT ALL C.ADEQUATELY E.VERY WELL
B.PUORLY D.WELL F.DON'T KNOW

	NUMBER OF RESPONSES	A	B	C	D	E	F
TOTALS	3	0	0	2	0	0	1
		0.0%	0.0%	66.7%	0.0%	0.0%	33.3%
HIGH SCH	3	0	0	2	0	0	1
		0.0%	0.0%	66.7%	0.0%	0.0%	33.3%
SECONDARY	3	0	0	2	0	0	1
		0.0%	0.0%	66.7%	0.0%	0.0%	33.3%

97.HOW WELL WERE ENTERING SCIENCE ACADEMY STUDENTS PREPARED IN SOCIAL STUDIES?
A.NOT AT ALL C.ADEQUATELY E.VERY WELL
B.PUORLY D.WELL F.DON'T KNOW

	NUMBER OF RESPONSES	A	B	C	D	E	F
TOTALS	3	0	0	1	0	0	2
		0.0%	0.0%	33.3%	0.0%	0.0%	66.7%
HIGH SCH	3	0	0	1	0	0	2
		0.0%	0.0%	33.3%	0.0%	0.0%	66.7%
SECONDARY	3	0	0	1	0	0	2
		0.0%	0.0%	33.3%	0.0%	0.0%	66.7%

Figure G-1. (Continued, Page 9 of 10)

98.HOW WELL WERE ENTERING SCIENCE ACADEMY STUDENTS PREPARED IN STUDY SKILLS?
A.NOT AT ALL C.ADEQUATELY E.VERY WELL
B.POORLY D.WELL F.DON'T KNOW

	NUMBER OF RESPONSES	A	B	C	D	E	F
TOTALS	3	0 0.0%	2 66.7%	1 33.3%	0 0.0%	0 0.0%	0 0.0%
HIGH SCH	3	0 0.0%	2 66.7%	1 33.3%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	3	0 0.0%	2 66.7%	1 33.3%	0 0.0%	0 0.0%	0 0.0%

99.HOW WELL WERE ENTERING SCIENCE ACADEMY STUDENTS PREPARED IN THINKING SKILLS?
A.NOT AT ALL C.ADEQUATELY E.VERY WELL
B.POORLY D.WELL F.DON'T KNOW

	NUMBER OF RESPONSES	A	B	C	D	E	F
TOTALS	3	0 0.0%	1 33.3%	2 66.7%	0 0.0%	0 0.0%	0 0.0%
HIGH SCH	3	0 0.0%	1 33.3%	2 66.7%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	3	0 0.0%	1 33.3%	2 66.7%	0 0.0%	0 0.0%	0 0.0%

Figure G-1. (Continued, Page 10 of 10)

FIGURE G-2

ADMINISTRATOR SURVEY QUESTIONS AND RESPONSE RATES

8. THE MAGNET PROGRAM AT MY CAMPUS SATISFIES STUDENTS WITH INTERESTS IN THE PROGRAM'S AREA OR AREAS OF FOCUS.

A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	12	7 58.3%	4 33.3%	0 0.0%	0 0.0%	1 8.3%
ELEMENTARY	5	4 80.0%	0 0.0%	0 0.0%	0 0.0%	1 20.0%
JR HIGH	2	0 0.0%	2 100.0%	0 0.0%	0 0.0%	0 0.0%
HIGH SCH	5	3 60.0%	2 40.0%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	7	3 42.9%	4 57.1%	0 0.0%	0 0.0%	0 0.0%

9. ADVISORY COMMITTEES (FORMAL OR INFORMAL) HAVE MADE BENEFICIAL CONTRIBUTIONS TO THE MAGNET PROGRAM.

A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	12	4 33.3%	5 41.7%	1 8.3%	1 8.3%	1 8.3%
ELEMENTARY	5	2 40.0%	1 20.0%	0 0.0%	1 20.0%	1 20.0%
JR HIGH	2	0 0.0%	1 50.0%	1 50.0%	0 0.0%	0 0.0%
HIGH SCH	5	2 40.0%	3 60.0%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	7	2 28.6%	4 57.1%	1 14.3%	0 0.0%	0 0.0%

10. TEACHING MAGNET SCHOOL CLASSES CREATES EXTRA WORK FOR TEACHERS.

A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	12	4 33.3%	4 33.3%	2 16.7%	2 16.7%	0 0.0%
ELEMENTARY	5	1 20.0%	2 40.0%	0 0.0%	2 40.0%	0 0.0%
JR HIGH	2	1 50.0%	0 0.0%	1 50.0%	0 0.0%	0 0.0%
HIGH SCH	5	2 40.0%	2 40.0%	1 20.0%	0 0.0%	0 0.0%
SECONDARY	7	3 42.9%	2 28.6%	2 28.6%	0 0.0%	0 0.0%

Figure G-2. ADMINISTRATOR SURVEY QUESTIONS AND RESPONSE RATES. (Page 1 of 3)

11. THE MAGNET PROGRAM AT MY CAMPUS SHOULD CONTINUE, EVEN IF FEDERAL FUNDING IS NOT AVAILABLE.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	12	8 66.7%	2 16.7%	1 8.3%	1 8.3%	0 0.0%
ELEMENTARY	5	5 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
JR HIGH	2	0 0.0%	0 0.0%	1 50.0%	1 50.0%	0 0.0%
HIGH SCH	5	3 60.0%	2 40.0%	0 0.0%	0 0.0%	0 0.0%
SECONDARY	7	3 42.9%	2 28.6%	1 14.3%	1 14.3%	0 0.0%

12. I AM GENUINELY CONCERNED ABOUT THE MAGNET PROGRAM'S SUCCESS.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	12	6 50.0%	3 25.0%	0 0.0%	1 8.3%	2 16.7%
ELEMENTARY	5	3 60.0%	0 0.0%	0 0.0%	0 0.0%	2 40.0%
JR HIGH	2	1 50.0%	1 50.0%	0 0.0%	0 0.0%	0 0.0%
HIGH SCH	5	2 40.0%	2 40.0%	0 0.0%	1 20.0%	0 0.0%
SECONDARY	7	3 42.9%	3 42.9%	0 0.0%	1 14.3%	0 0.0%

13. HAVING A MAGNET PROGRAM AT THE CAMPUS HAS INCREASED MY MOTIVATION.
A. STRONGLY AGREE C. NEUTRAL E. STRONGLY DISAGREE
B. AGREE D. DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	12	5 41.7%	3 25.0%	3 25.0%	1 8.3%	0 0.0%
ELEMENTARY	5	2 40.0%	2 40.0%	0 0.0%	1 20.0%	0 0.0%
JR HIGH	2	1 50.0%	0 0.0%	1 50.0%	0 0.0%	0 0.0%
HIGH SCH	5	2 40.0%	1 20.0%	2 40.0%	0 0.0%	0 0.0%
SECONDARY	7	3 42.9%	1 14.3%	3 42.9%	0 0.0%	0 0.0%

Figure G-2. (Continued, Page 2 of 3)

14. MAGNET PROGRAMS GIVE TEACHERS GREATER FLEXIBILITY IN TEACHING THE CURRICULUM.
A. STRONGLY AGREE
B. AGREE
C. NEUTRAL
D. DISAGREE
E. STRONGLY DISAGREE

	NUMBER OF RESPONSES	A	B	C	D	E
TOTALS	12	2 16.7%	4 33.3%	1 8.3%	3 25.0%	2 16.7%
ELEMENTARY	5	1 20.0%	1 20.0%	0 0.0%	1 20.0%	2 40.0%
JR HIGH	2	0 0.0%	0 0.0%	1 50.0%	1 50.0%	0 0.0%
HIGH SCH	5	1 20.0%	3 60.0%	0 0.0%	1 20.0%	0 0.0%
SECONDARY	7	1 14.3%	3 42.9%	1 14.3%	2 28.6%	0 0.0%

34. ON THE AVERAGE, THE DIFFICULTY LEVEL OF THE MAGNET CURRICULUM IS:
A. TOO DIFFICULT
B. DIFFICULT
C. JUST RIGHT
D. EASY
E. TOO EASY
F. DON'T KNOW

	NUMBER OF RESPONSES	A	B	C	D	E	F
TOTALS	11	0 0.0%	2 18.2%	8 72.7%	0 0.0%	0 0.0%	1 9.1%
ELEMENTARY	5	0 0.0%	0 0.0%	5 100.0%	0 0.0%	0 0.0%	0 0.0%
JR HIGH	2	0 0.0%	0 0.0%	2 100.0%	0 0.0%	0 0.0%	0 0.0%
HIGH SCH	4	0 0.0%	2 50.0%	1 25.0%	0 0.0%	0 0.0%	1 25.0%
SECONDARY	6	0 0.0%	2 33.3%	3 50.0%	0 0.0%	0 0.0%	1 16.7%

Figure G-2. (Continued, Page 3 of 3)

Magnet Schools Assistance Program

Appendix H

GRANT PERSONNEL AND STAFF DEVELOPMENT

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Magnet Schools Assistance Program

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FIGURE H-2: Summary of Staff Development and Training Activities. 165

GRANT PERSONNEL AND STAFF DEVELOPMENT

Purpose

The qualifications and expertise of the staff who contribute directly to the functioning of the program and the delivery of services to the students are important factors in the overall success of Austin's magnet school programs. The purpose of Appendix H is to evaluate the information relevant to the human resources involved in the magnet school program. The following decision and evaluation questions were examined:

Decision Question D1. Should the elementary magnet programs be continued as they are, modified, expanded, or discontinued?

Evaluation Question D1-2. Did staff training occur? Were training sessions rated to be of high quality?

Evaluation Question D1-3. How were grant-supported personnel used?

Decision Question D2. Should the Murchison Junior High Foreign Language Magnet Program be continued as it is, modified, expanded, or discontinued?

Evaluation Question D2-2. Did staff training occur? Were training sessions rated to be of high quality?

Decision Question D3. Should the Science Academy of Austin Magnet Program be continued as it is, modified, expanded, or discontinued?

Evaluation Question D3-2. Did staff training occur? Were training sessions rated to be of high quality?

Evaluation Question D3-4. Were grant-supported personnel hired? How were they used?

Evaluation Question D3-8. Did staff recruitment occur? Were staff attracted from outside AISD?

The answers to these questions will reveal whether AISD's magnet programs have made progress toward developing instructional programs that go above and beyond the regular curriculum by training teachers in instructional methodology appropriate to the magnet curriculum. Special training is essential to the uniqueness and success of the magnet programs, as well as to meeting the objective stated in the magnet proposal: To assess and plan needed staff development training sessions.

Procedure

Data Collection

A variety of information sources were utilized for providing the information needed to answer the evaluation questions. The following procedures were followed in gathering information:

Key Personnel

- During interviews with the principals, key campus personnel, both grant funded and locally funded, were identified.
- Questionnaires were sent to eleven non-administrator key personnel at five elementary campuses on April 11 inquiring about their roles and responsibilities. (See Attachment H-1 for the memo and questionnaire sent to the staff.)

Staff Training

- Records of staff development training sessions and who attended were available from the purchase requisitions submitted by the campuses for payment of stipends.
- Where available, records of the evaluation ratings of the training sessions were to be obtained from the campuses.

Science Academy Staff Recruitment

- The Science Academy Director was interviewed about recruitment activities and the results thereof in terms of the number of teachers who expressed an interest in coming to the AISD and the number and quality of those who obtained jobs at the Academy or in the AISD.

Analyses

Key Personnel

Descriptive information of the key personnel was compiled from the returned questionnaires. Grant personnel were separated from locally funded personnel for the purpose of describing roles and responsibilities.

Staff Training

Information on the number and nature of training sessions was summarized and tallied for each campus. The total number of teacher hours was calculated where possible as an index of the extensiveness of training at each campus. Some schools did not plan for in-house training but rather sent

teachers to conferences. In those cases, total days at conferences and workshops were calculated. The amount of training actually delivered was always viewed within the context of the proposal submitted by the campus.

Science Academy Staff Recruitment

Descriptive information obtained from the interview with the Director is presented below in the results section titled Science Academy Staff Recruitment.

Results

How were grant-supported personnel used?

Personnel hired with grant funds were paid entirely by magnet funds, and therefore, devoted 100 percent of their time to magnet activities. The personnel supported by grant funds at each campus were as follows:

CAMPUS	PERSONNEL	JOB TITLE
Brooke	several	Part-time Teachers
Bryker Woods	1	Helping Teacher
Gullett	0	
Highland Park	1	Teacher Aide
Ortega	1	Helping Teacher
Sims	1	Teacher Aide
Shared	2	Teacher Planner
Murchison	0	
Science Academy	0	

Figure H-1. GRANT-SUPPORTED PERSONNEL AT MAGNET CAMPUSES

Attachment H-2 is a table summarizing the roles and responsibilities of each salaried grant-funded staff person at the elementary campuses.

Did Staff training occur?

Campus administrators were not required to have teachers fill out evaluation forms for staff development sessions which were not required or supported by the District. Evaluation ratings of magnet-related staff development sessions were not done. Therefore, the questions related to the quality of training sessions cannot be answered.

Two main categories of staff training activities took place. Teachers attended: 1) out-of-district conferences and workshops, or 2) on-campus inservice sessions. Out-of-district activities attended included, but

were not limited to, the International Conference on Magnet Schools, National Science Teacher Association Conference, International Reading Conference, and the American Educational Research Association Convention.

A variety of on-campus staff development sessions were offered to meet the needs of the teachers at the magnet campuses. Examples of offerings included: science workshops, computer training, VCR equipment training, social studies workshops (map and reference skills), and training in LOGO computer programming.

At Brooke and Ortega and two non-magnet campuses, staff training was offered in an instructional program called Writing Aerobics. Writing Aerobics was designed to promote academic and personal growth through writing. The program used relaxation and guided fantasy to encourage the use of imagination to construct new and unusual experiences to stimulate the writing process. Teacher participation in the program was voluntary. Training consisted of an orientation meeting, inservice on the theory of the writing process, and biweekly writing groups in which teachers wrote and shared their own compositions. The program coordinator also provided individual consultation and classroom demonstrations.

Figure H-2 presents a summary of staff development and teacher training activities conducted at each campus. The staff development plans or objectives for each campus (as stated in the magnet grant proposal) are also presented in Figure H-2.

An assessment was made by the evaluator of how well each campus met their staff training objectives after considering the data and speaking with each principal about their perceptions of how well objectives were met. In order for a campus to meet their objectives, each activity, or a substitution of comparable value, must have been offered. To exceed the objectives, the campus must have offered additional training opportunities that were not stated in the plans. The labels of "Partially Met Objectives," "Met Objectives," or "Exceeded Objectives" were used to describe the degree of progress made.

From Figure H-2 the following conclusions were drawn about staff training activities:

- Of the elementary programs, three campuses and the Writing Aerobics program met their objectives, two campuses exceeded their objectives, and only one campus did not pursue the original plans.

- All elementary campuses worked toward achieving the programwide objectives dealing with staff training, in keeping with the intention of the grant. Even the campus that did not follow the stated training plans offered alternative training opportunities that worked toward the overall objectives.

- The junior high foreign language program did not pursue staff training for several reasons: the equipment was not available, all but one of the language teachers will not be at Murchison in 1986-87, and Murchison will not be funded as a magnet school in 1986-87.

- The Science Academy met their staff training objectives by providing staff inservice and a faculty retreat during the summer for curriculum and program planning and goal setting.

Science Academy Staff Recruitment

Recruiting of Science Academy staff for 1985 through 1987 was done by the director in order to fill four faculty positions. The director visited three large Texas universities, which yielded six to eight interviews from whcih two job offers were made as of July 31. Nine potential staff recruits from other areas of the nation heard about the program and contacted the director for information. In addition, through the Science Academy's staff recruitment activities, approximately 20 teachers were attracted to other schools within the AISD from outside the District.

The quality of the teachers is a very important factor in the success of the curriculum, as well as an important consideration in the hiring of new staff. Almost all of the present and new Science Academy teachers have received honors for their teaching. Among them are:

- Four state Teachers of the Year,
- One local Teacher of the Year,
- One nominated for a presidential excellence award in chemistry teaching,
- One nominated as Rookie Teacher of the Year for the state of Texas,
- Two Dreyfus scholars (an award presented from Princeton University), making LBJ the only school in the nation with two Dreyfus scholars on the faculty,
- Directors of the Texas state math championship winning team (three times),
- One who is the President-Elect of Women in Math Education Association, and
- One who is president of the local science teachers' group (START).

Discussion

While the administrator was responsible for the program at each campus, grant-funded staff were key persons in helping the administrator operate

the programs. However, in addition to the grant personnel, other staff at the campuses were designated as having key roles in the implementation and execution of the magnet programs and assisted the principals in program coordination. Numerous teachers and aides were responsible for the teaching of the magnet curricula and, therefore, also contributed to the overall operation of the programs.

While only a few persons were funded by the magnet grant, all teachers were expected to participate in curriculum development and staff training activities. An important aspect of the Magnet Schools Assistance Program grant was the training of teachers in methods appropriate to the newly written magnet curriculum units and newly acquired equipment.

In order to keep within the intention of the grant, some campuses had to alter their original staff training plans so that the needs of the program and teachers could be met. Where original plans were changed, there was no deviation from the purpose or primary objectives of the training.

Unfortunately, staff development plans for the foreign language program had to be dropped because the video and computer equipment was not available on time and because the continuation of the program was doubtful. Because of these extenuating circumstances, Murchison was the only magnet school which did not meet its staff training objectives.

In addition to providing staff development and planning sessions for the Science Academy staff, Kealing Junior High teachers also were paid for attending 15 hours of training during the summer. Science Academy teachers also taught workshops sponsored by the Region XIII Service Center. The Science Academy staff development provided training to their teachers, who in turn, will provide training to other AISD secondary and elementary teachers.

The campuses generally did not encounter any difficulty in meeting their staff development objectives; in fact, they provided more training than originally planned. Although Brooke Elementary did not provide the type of training originally planned, alternative activities were offered which met the individual needs of the staff who participated. Unfortunately, information about the quality of staff development provided at the campuses was not available because evaluation rating forms were not filled out by the participants.

In conclusion, documentation of staff development goals, participation in training, and evaluation of sessions are areas in which improvements could be made. Especially at the Science Academy, where the faculty are essential to the successful implementation of the curriculum, greater attention to the type and amount of training received by each teacher could be documented so as to provide data that could be considered as a possible factor contributing to the impact of the program on student achievement.

Figure H-2

SUMMARY OF STAFF DEVELOPMENT
AND TRAINING ACTIVITIES

85.41

STAFF DEVELOPMENT AND TRAINING

BROOKE:

Planned Activities: Two-day planning session for all teachers with four teachers who were awarded Rockefeller Brother grants for excellence in arts.

Actual Activities: Conferences/Workshops:
Total Attendance: 9, Total Time: 28 Days

Assessment: PARTIALLY MET OBJECTIVES. While the original plans were changed, and therefore not met, the program-wide objectives were met.

BRYKER WOODS:

Planned Activities:
- Six inservice sessions presented by professionals on the use of science apparati,
- Presentations on content area topics, including ideas for class activities.

Actual Activities: Conferences/Workshops:
Total Attendance: 17, Total Time: 56 Days
Campus Inservice:
Total Attendance: 46, Total Time: 280 Hours

Assessment: MET OBJECTIVES. The inservice activities, along with the curriculum activities, contributed to meeting the campus training objectives. Conference attendance may actually have exceeded expectations.

GULLETT:

Planned Activities: No on-campus staff development was planned because of the wide range of interests and needs among the teachers and because of the highly specialized nature of the curriculum modules. Instead, teachers were to be sent to conferences that could address individual needs.

Actual Activities: Conferences/Workshops:
Total Attendance: 19, Total Time: 72 Days

Assessment: MET OBJECTIVES. Because no details were specified in the plans, Gullett at least met their objective, and may have even exceeded their expectations for attendance at conferences.

HIGHLAND PARK:

Planned Activities:
- Outdoor education training by Wild Basin personnel
- Training in using computers in the classroom conducted by computer experts in the teaching profession.

Actual Activities: Campus Inservice:
Total Attendance: 136, Total Time: 859 Hours

Assessment: MET OBJECTIVES. The planned activities occurred, and most likely more time was devoted to training than was originally expected.

Figure H-2. SUMMARY OF STAFF DEVELOPMENT AND TRAINING ACTIVITIES AT MAGNET CAMPUSES. Note: Total attendance is the sum of attendance at all activities. Total time is the attendance multiplied by the total time for each activity and summed across all activities in each category. (Page 1 of 3).

ORTEGA:

Planned Activities:	Five days of training in using thinking skills in social studies content, map skills, and decision-making skills.
Actual Activities:	Conferences/Workshops: Total Attendance: 11, Total Time: 43 Days Campus Inservice: Total Attendance: 28, Total Time: 328 Hours
Assessment:	EXCEEDED OBJECTIVES. The objectives were met by the campus inservice activities. Attendance at off-campus events represented additional, unplanned training.

SIMS:

Planned Activities:	• Two computer training sessions, • One media communications (VCR) training session.
Actual Activities:	Conferences/Workshops: Total Attendance: 4, Total Time: 12 Days Campus Inservice: Total Attendance: 76, Total Time: 442 Hours
Assessment:	EXCEEDED OBJECTIVES. Inservice activities included six hours of VCR training (three sessions), six hours in computers (two sessions), and six hours in LOGO, which went beyond the original plans.

BROOKE AND ORTEGA--WRITING AEROBICS:

Planned Activities:	Sessions on a program introduction, theory of writing, teacher writing and sharing
Actual Activities:	Conferences/Workshops: Total Attendance: 1, Total Time: 10 Days Campus Inservice: Total Attendance: 50, Total Time: 311 Hours
Assessment:	MET OBJECTIVES. Each type of session was offered, with several teachers in attendance at each.

MURCHISON:

Planned Activities:	Three days of foreign language curriculum planning during the spring, and two weeks during the summer in exemplary methods of teaching languages including the use of computers and video equipment were planned.
Actual Activities:	None
Assessment:	DID NOT MEET OBJECTIVES. Murchison experienced difficulty in obtaining and installing video and computer equipment in a timely manner. In addition, because the program will not continue and there was at one time the possibility that Murchison would be closed, the foreign language teachers, with the exception of one, will not return to Murchison in 1986-87.

Figure H-2. Continued, (Page 2 Of 3). Note: Total attendance is the sum of attendance at all activities. Total time is the attendance multiplied by the total time for each activity and summed across all activities in each category.

SCIENCE ACADEMY:

Planned Activities: Several activities were planned, including: a summer workshop for all faculty to improve teaching practices, and three days of sessions for other math, science, and computer teachers in AISD. In addition, a few teachers will enroll in university summer courses in their respective subject areas with the grant funding tuition and stipends.

Actual Activities: The following grant-funded staff development activities occurred during the summer:

	Teachers	Time per Teacher	Total
• Inservice:	26 S.A./AISD	16 hours	416
• Retreat/Planning:	14 S.A. only	32 hours	448
• Cooperative Learning Groups:	14 S.A. only	12 hours	168
	39 Kealing	15 hours	585
		TOTAL	1,617

Other Training:

One teacher was sent to each of the following out-of-district workshops:
- Teacher Effectiveness Training (Dallas)
- American Association of Physics Teachers Institute (to develop physics teaching resource agents) (Ohio)
- Dreyfus Institute (New Jersey)
- Institute of Chemical Education (Arizona)

Several teachers attended the following local workshops:
- Curriculum Writing Skills
- Common Sense Discipline (6 hours)
- Suicide: How Does it Happen? (6 hours)
- Madeline Hunter Learning Institute (21 hours)
- Math Institutes:
  - Problem Solving is not a Spectator Sport (6 hours)
  - Clinical Processes in Math Instruction (18 hours)
  - Odds Are You'll Win (6 hours)
- Five S.A. teachers taught six days of staff development sessions sponsored by the Region XIII Service Center

Assessment: EXCEEDED OBJECTIVES. The Science Academy went beyond the training objectives stated in the proposal. The out-of-district workshops were to prepare teachers to train other AISD teachers as part of the objective of serving as a model program. As a result of staff development with other teachers, packages of the Science Academy's curriculum were requested by other AISD teachers. Summer staff development was conducted primarily for curriculum planning and goal setting.

Figure H-2. Continued, (Page 3 Of 3). Note: Total attendance is the sum of attendance at all activities. Total time is the attendance multiplied by the total time for each activity and summed across all activities in each category.

Magnet Schools Assistance Program

Appendix I

CURRICULUM AND INSTRUCTION AT MAGNET SCHOOLS

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CURRICULUM AND INSTRUCTION AT MAGNET SCHOOLS

Purpose

The curricula in the AISD magnet programs were designed to supplement, not supplant or duplicate, the existing curricula in the District. The grant included plans for expanding and improving the magnet curricula by providing stipends for curriculum writers. Funds were also available for either taking students on field trips or for paying persons or groups to bring their presentations or activities to the campus. Such activities were to contribute to the overall quality and uniqueness of the magnet programs. Appendix I documents the progress made in curricular and instructional improvements in response to the following evaluation questions:

Evaluation Question D1-5. Were magnet-related instructional activities supported by grant funds implemented as planned?

Evaluation Question D1-6. What activities have occurred to articulate the scope and sequence of a K-12 science magnet curriculum?

Question D1-5 refers primarily to curriculum writing and field trips for the students. Curriculum activities at each campus were designed to meet the following program objectives:

- To allow time to plan magnet school classroom activities,
- To revise previously implemented activities based on group evaluation sessions, and
- To develop, refine, and revise the magnet school curriculum.

Question D1-6 addresses the documentation and coordination of the science curriculum by the science teacher planner and other personnel. These activities were important aspects of the programs and contributed to the achievement of the following objectives:

- To contribute to the enrichment of the regular district curriculum in basic academic areas offered at the magnet campuses,
- To develop a districtwide elementary magnet science curriculum to interface with the secondary science magnet program, and
- To coordinate the development of a K-12 district science magnet curriculum.

Procedure

Data Collection

Information in response to the evaluation questions was gathered by the evaluator in the following ways:

- Information about activities that were planned for the year was obtained from the campus proposal planning sheets and from interviews with the principals.
- Information about field trips was available from purchase requisitions submitted for entrance fees. Newsletters from the campuses and interviews with the principals also yielded information.
- Evidence of curriculum writing and other activities done at the campuses was collected on an on-going basis from purchase requisitions submitted for payment of stipends to the curriculum writers.
- Interviews with the principals, Science Academy Director, and teacher planner provided information about the activities that occurred to articulate the K-12 science magnet curriculum, especially about the coordinating activities that occurred to help link the elementary and secondary curricula through the implementation of the new Kealing science magnet.

Analyses

The type of information collected did not lend itself to quantification, except in a few cases. Therefore, explanations and descriptions of the activities that occurred are presented. Where ever possible, descriptive statistics or frequencies and tallies were calculated to summarize the information.

Results

What instructional activities were implemented?

Instructional Activities

Field trips made an important contribution to the overall experience of the magnet curriculum. Interesting activities were selected that directly related to the magnet curriculum, or that were an extension or enrichment of the curriculum, or in some way helped to complement, merge, or unify the regular and magnet curricula. In accounting for the field

trips or special presentations that were brought to the campuses, a list of activities was generated for each campus that had field trips. The activities for each program are presented in Attachment I-1.

Curriculum Activities

The curriculum activities were of three main types: 1) writing, 2) coordinating, and 3) planning. Writing of new units or revisions of existing units was carried out by teachers at each campus for a stipend. Coordinating activities generally dealt with examining the curriculum taught in the regular classroom in order to make the magnet curriculum an extension or enrichment of the existing classroom curriculum. Coordinating also entailed the documenting of the scope and sequence of the regular, AIM High (gifted and talented), and magnet curricula by the science teacher planner in coordination with the Office of Gifted Education. Articulation of the K-12 science curriculum via the planning and implementation of the Kealing magnet program, through efforts from both the elementary and secondary level, was also part of the coordinating activities.

The curriculum activities that occurred at each of the magnet campuses also are presented in Attachment I-1.

What activities occurred to articulate the scope and sequence of a K-12 science magnet curriculum?

Elementary

The science teacher planner was hired to work with the elementary science magnets and the Office of Gifted Education (OGE) with the following roles and responsibilities:

- To serve as a liaison between the elementary science magnet programs and the AIM High science program (which was being developed to pilot at ten schools in 1986-87),
- To catalog elementary science curriculum resources in each magnet school to facilitate articulation with the AIM High program and ultimately with the secondary magnet science curriculum, and
- To provide assistance to the magnet programs as a science resource as requested.

Some of the major activities and accomplishments that occurred included the following:

- Examination and documentation of the scope and sequence of the District's science curriculum, AIM High units under development, and magnet science units were carried out in order to discover where content topics and sequences were complementary or parallel. Attachment I-2 shows the general topics (and sequence) taught by the magnet programs at each grade level.

- Coordination occurred between the magnet science curriculum and the AIM High curriculum development to preclude duplication of units or repetition of content.

- Initial meetings occurred between elementary and secondary science coordinators with magnet and OGE personnel to develop a statement of philosophy for the AISD's science instruction.

Many difficulties were encountered that hindered accomplishing the stated objectives. Below are listed two of the main difficulties that occurred.

- Insufficient time and resources precluded final coordination of the curricula; the real work for setting Kealing's curriculum in place occurred in August, after the teacher planner had gone off duty.

- Because each elementary magnet had a unique science program, there was no strong interest generated by the magnet campuses in coordination among the programs that would help to articulate the elementary programs with the junior high science magnet program.

Secondary

Activities were conducted to promote coordination between the high school science magnet curriculum with the Kealing science curriculum and between the secondary and elementary curriculum that were initiated by or in association with the Science Academy. A summary of major activities follows.

- The Science Academy Director worked with the principal of Kealing in the planning and preparation of the scope and sequence of the junior high science magnet curriculum. Much of Kealing's curriculum will be complementary and parallel to that of the Science Academy.

- During the summer, 1986, Science Academy teachers worked with Kealing teachers in curriculum writing and instructional planning.

- The Science Academy Summer Institute (SASI) began in 1985 and operated again in 1986 for any student in grade 7 or 8 interested in science.

- A pilot program was started at Highland Park in which Science Academy teachers trained elementary teachers in science instructional techniques. Teacher training will be expanded in 1986-87 through the use of videotaped sessions.

Discussion

The elementary programs were able to fulfill most of their field trip and curriculum plans despite a late start. In most cases, the campuses did not need to state detailed plans with respect to field trips and on-campus activities. Therefore, most plans were met or exceeded.

With respect to curriculum activities, the late start meant that most of the results of curriculum planning and writing would not be usable during the 1985-86 academic year. Several writing and planning sessions were scheduled for the summer months when teachers were not under the same types of schedules and pressures as during the school year. The results of curriculum activities will not be fully realized or visible until the 1986-87 school year.

In general, the coordinating activities that were to occur to articulate the elementary and secondary science programs did not meet the objectives set forth in the magnet program proposal. However, beginning efforts were made toward achieving the objectives. Because of delays in hiring staff and scheduling meetings, the amount of progress made was disappointing to the teacher planner who was assigned to work on the task.

The diversity of foci in the elementary science magnet programs also created difficulties for the coordination efforts. Furthermore, the elementary programs were experiencing a variety of difficulties in the execution of their programs, which prevented them from allocating time and effort to the plans to articulate the programs. However, the coordinating activities between the Science Academy and the Kealing Junior High science magnet were more frequent and consistent, and probably yielded results which will be seen in 1986-87, the first year of the junior high science magnet program.

Caution should be used in judging the extent of or the effectiveness of the curriculum and instructional activities by the quantity alone. Rather, the impact of those activities on the teachers, students, and future years of the programs should be taken into consideration. Unfortunately, the full impact cannot be assessed until a later time.

FIGURE I-1

MAGNET SCHOOL CURRICULUM AND INSTRUCTIONAL ACTIVITIES

APPENDIX I

MAGNET SCHOOL CURRICULUM AND INSTRUCTIONAL ACTIVITIES

BROOKE

Field Trips: Students attended stage and dance performances as fine arts field trips and on-campus assemblies.

TOTAL EVENTS: 9
TOTAL STUDENT ATTENDANCE: 1285

Campus Activities: Brooke hired part-time teachers to come to the campus to offer special instructional activities to the students. Activities included the following:

- Poetry Recitation
- Music/Science
- Folk Dancing
- Puppetry
- Print Making
- Mural Painting

TOTAL HOURS BY PART-TIME TEACHERS: 817

BRYKERWOODS

Curriculum Writing: From one to three teachers worked six to eight hours for several days to create science lesson plans that reflected the use of new equipment and materials, to centralize science materials, and to establish science centers and bulletin boards.
TEACHER HOURS: 360

Curriculum Planning: Teachers met for two hour sessions throughout the year to plan grade-level science as it related to the magnet program.
TEACHER HOURS: 130

Curriculum Coordinating: Teachers met, usually for two-hour sessions or for a full day, to coordinate the magnet science program with the classroom regular science curriculum.
TEACHER HOURS: 200

TOTAL TEACHER HOURS: 690

GULLETT

Curriculum Writing: Several new curriculum modules were written for the extended-day magnet program. Teachers were paid to write a unit.

TOTAL NEW MODULES: 11

HIGHLAND PARK

Curriculum Writing: All 28 teachers were involved in writing curriculum for science and computers during August and September.

TOTAL TEACHER HOURS: 593

ORTEGA

The following field trips had admissions and fees paid for by the grant:

- Natural Science Center
- Play: King Arthur
- Opera: Cynthia Parker
- Austin Nature Center--Birds of Prey Presentation
- Discovery Hall
- Vanishing Texas River Cruise

TOTAL STUDENTS: All students, at least once

Curriculum Writing: Seven teachers and one leader met together for a total of 14 hours each to develop and prepare a schoolwide curriculum unit called "December Difference."

TOTAL TEACHER HOURS: 112

SIMS

The following field trips had admissions and fees paid for by the grant:

- Inner Space Caverns, Grades 1 & 2, 137 students
- San Antonio Zoo, Grade 3, 68 students
- Living Jungle Science Programs, 165 students

TOTAL STUDENTS: 370

MAGNET SCIENCE CURRICULUM: GENERAL TOPICS

BRYKER WOODS: Grades K-3

- Sound
- Sight
- Smell
- Touch
- Taste
- Predator/Prey Relationship
- Food Webs
- Changes Brought by Fall
- Beginning Ecology
- Construction of an Ecosystem
- Energy flow
- Cycle of Nutrients
- Relations in an Ecosystem
- Weather
- Astronomy
- Rocks and Minerals
- Plant Study
- Insect Study

GULLETT: GRADES 4-6

- Astronomy I-V
- Balloons and Gases
- Kitchen Physics
- Aerodynamics
- Pendulums
- Amazing Insects
- Botany
- Energy
- Frogs (Dissection)
- Stream Tables
- Science of Color (Batik)
- Chemistry: Solid, Liquid, Gas
- Gases and Airs
- Mystery Powders
- Optics
- Microscopic Life
- Animals and Animal Behavior
- "It's a Biological World"
- Bones
- Drops, Streams, and Containers
- Science Projects
- Codes

HIGHLAND PARK

GRADE K

- Sink and Float
- Magnets
- Highland Park Habitat
- Attributes
- Senses
- Linear Measurement
- Plants: Seeds
- Isopods
- Sun and Shadow

GRADE 1

- Three States of Water
- Outdoor Learning Center
- Magnets
- Sound
- Plants: Roots and Stems
- Birds

GRADE 2

- Water Magic Tricks
- Outdoor Learning Center
- Pendulums
- Air
- Plants: How They Grow
- Insects

GRADE 3

- Salt Water / Fresh Water
- Outdoor Learning Center
- Pendulums
- Rocks
- Plants
- Life in Pond Water (Microscope)

SIMS

GRADE 1

- Kinds of Plants
- Weather
- Living/Nonliving Differences

GRADE 2

- Dinosaurs
- Magnets
- Earth, Air, Water

GRADE 3

- Astronomy
- Animal Species/ Endangered Animals
- Simple and Compound Machines

Magnet Schools Assistance Program

Appendix J

GRANT-FUNDED EQUIPMENT PURCHASES

GRANT-FUNDED EQUIPMENT PURCHASES

The magnet grant provided an opportunity for Austin's magnet schools to improve and expand their programs through the purchasing of equipment and instructional materials that would augment the curriculum. During the grant planning and writing process, each campus specified some of the major pieces of equipment they intended to acquire with grant funds. Because a major focus of the 1985-86 evaluation was on compliance with grant regulations and implementation of the magnet grant, an important consideration was the progress made toward acquiring the equipment necessary to support the magnet curriculum. The purpose of Appendix J is to document the information related to purchases from grant funds in response to the following evaluation question.

Evaluation Question D1-4, D2-3, D3-3. Were proposed grant-financed equipment, supplies, and materials purchased?

The answer to this question should help provide an index of how well the programs were able to achieve their goals and meet their implementation timelines.

Procedure

Data Collection

The magnet evaluator collected information about purchasing and problems experienced during the year and strategies used by the campus administrator to resolve difficulties.

1. During interviews with program administrators, questions were asked regarding whether or not the original plans were still feasible, whether any changes or problems were anticipated, and whether any major difficulties were experienced in the acquisition of equipment and materials.

3. In order to remain informed about the equipment and supplies being purchased, information was collected on an on-going basis from purchase requisitions submitted by the campuses. All requisitions encumbering funds for purchases had to be submitted by July 31 for approval.

Analyses

The information obtained from interviews was of a qualitative, descriptive nature; therefore, no statistical analyses were performed. Summaries from interviews and purchase documents are presented which reflect the progress and problems experienced at the campuses.

Results

There were some common problems among the programs dealing with finances and purchasing that created many of the difficulties in meeting the objectives this year. Essentially, they were the following:

1. There were major discrepancies between what the administrators requested and what was written into the grant proposal. Because of this, the budget that was approved did not always serve the needs of the programs. Furthermore, what principals listed on their planning sheets as examples of equipment items to be purchased became limits (in terms of the type and cost of the items) in the final budget.

2. The purchasing procedure was very slow between the time a purchase requisition was submitted from a campus to the time the shipment was received. Many pruchase requisitions were questioned and/or refused when first submitted.

3. The campus administrators had to negotiate with the financial administrators over many purchase requests, and at times written rationales for the items had to be submitted to justify a purchase.

While it was necessary for the District to adhere to the federal guidelines and to be consistent with the proposal as it was approved, the complexity of the system created problems that perhaps could have been avoided. Better communication about the procedures and limitations could have occurred, for several of the campus administrators said they learned the rules as they went along instead of up front at the beginning of the year.

Each campus experienced a different degree of difficulty with the process and varied in the extent to which their objectives were met or delayed. A brief description of each campus' experience follows. Information was obtained from the principal and/or other primary staff, and may not always be objective, since it represents only one point of view--that of the campus administration.

BROOKE:

Several musical instruments were purchased, some (e.g., guitars) in sufficient quantity to permit instruction to a class of 30 at one time or half a class on other instruments (e.g., electric pianos). Many materials for the art room were purchased, including a drying cabinet and a damp and dry work unit, and filmstrips on art appreciation.

With one exception, no departures from the original objectives occurred with respect to equipment purchases. Computers with music software for instructional purposes were not approved. However, Brooke was able to purchase from grant funds one computer and a digital piano with which to interface it.

During the waiting period, when the budgets were being set up, Brooke used the time for planning and obtaining information and bids from vendors.

BRYKER WOODS:

Bryker Woods experienced a great deal of frustration in purchasing equipment. Many of the original plans had to be amended because the program had changed since the plans were formulated, and a change of principals had occurred. Although much equipment was ordered, very little had been received by the end of the year. Without the equipment, 1985-86 became a year of planning, and 1986-87 will be for implementing the new and revised curriculum with supporting equipment and materials.

The principal felt that the improvements to the program were hampered by the need to adhere strictly to the grant as approved, even when estimated costs of items had changed. The length of time involved from filling out a purchase requisition until receiving the materials was cited as being a major frustration.

GULLETT:

There were no departures from objectives at Gullett. A major purchase, a greenhouse, created some unexpected delays when city permits were required for its installation. Much of Gullett's purchasing was done during the summer, and so the new equipment should be obtained and in place for next year. Otherwise, purchasing was a relatively smooth process.

HIGHLAND PARK:

Because of delays, Highland Park will not be able to fully implement their science and computer program until 1986-87. The first ordered item

was not received until mid-May. The greatest difficulty experienced was in the ordering of a garden area storage shed. What was specified in the proposal was not the greenhouse that was wanted. A storage shed that could approximate a greenhouse had to be ordered. Highland Park also had to obtain city permits and involve Construction Management, which caused frustration and delays.

ORTEGA:

Like the other schools, Ortega's objectives were delayed but not changed because of the slow purchasing process. Ortega's primary problem was the lack of a capital outlay account from which to make purchases of equipment over $100. The proposal listed equipment with prices that clearly indicated the need for a capital outlay account. To circumvent this problem, equipment, such as maps, had to be ordered piecemeal rather than as a set of several maps on a single spindle. Purchasing units rather than sets meant a higher total cost. Video equipment could not be purchased with grant funds; instead, the PTA had to be solicited to buy a VCR. Several such experiences created much frustration for Ortega.

SIMS:

No major problems were encountered at Sims. The long purchase process did not cause major difficulties. Sims had been operating their program without the additional equipment for several years, so a few more months did not make any difference.

MURCHISON:

Computers were ordered and received but not installed until after the close of school. The purchasing of video equipment was cumbersome. The grant provided funds for VCRs but not monitors, and Murchison did not have video monitors. Strategies were attempted to obtain bids for VCRs that included monitors as a video package.

Without the equipment, the accomplishment of other objectives was impossible. Training on the equipment for Murchison or other AISD teachers could not be conducted. Although software was ordered and received, its use was limited to the existing computers, which limited access by the students.

SCIENCE ACADEMY

The Science Academy was able to pursue their objectives as planned, albeit in a slightly slower manner in some areas because of the timing involved in purchasing and receiving equipment. In some instances, the

desired equipment could not be purchased because of the limitations of the grant, which caused frustration, but overall, most of the equipment that was planned for, was purchased. Departure from estimated timelines occurred as a result of the requisitioning process, but no deviation from the objectives occurred.

Discussion

The primary problem experienced by the magnet programs was the delay between receiving official notification that the grant was approved (early in October) and the time when the budget accounts were set up and could be used. It was not until late November that the campuses began to place purchase requisitions. In a few situations, it was not until December when grant-funded personnel were hired.

Despite delays in obtaining equipment, or not ordering or receiving equipment and materials until the summer, the schools were able to follow their plans and meet their objectives regarding the acquisition of materials that would significantly enhance the programs. However, the time involved in the process did affect the timelines that the schools had planned. Most programs expected to be able to receive the equipment in a more timely manner and have it operational during the 1985-86 school year. Instead, full implementation of the magnet curriculum with the new materials will have to wait until next year.

This year became a planning year for some of the schools. During the waiting period, the schools had an opportunity to plan the magnet curriculum with the integration of the new equipment and materials, as well as coordinate the magnet curriculum with the existing curriculum. While the grant provided the schools with the funds to make improvements and train teachers, the elementary schools were generally disappointed that they were not able to offer more to the students this year in terms of experiences with the materials that enhanced the curriculum.

Despite the frustrations and delays, the grant provided opportunities for improving the programs in ways that were not possible with limited local funds. Realizing this, the campus administrators exhibited patience and operated their programs as best as their resources permitted.

Magnet Schools Assistance Program

Appendix K

COST INFORMATION

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COST INFORMATION

Purpose

The cost of a special program, such as the magnet program, is an important consideration when making decisions about the program, as is the program's effectiveness and efficiency in delivery of services. The purpose of Appendix K is to identify the costs associated with operating the magnet programs in AISD by responding to the following evaluation questions:

Evaluation Question D1-8, D2-4, D3-9. What was the cost per student?

Evaluation Question D1-9, D2-5, D3-10. What was the cost for transportation?

Although the majority of the funds were provided by the federal grant, the District also allocated local funds for the programs. By law, no federal money could be used for the transportation of students residing outside the attendance area to and from the magnet campuses or for field trips. Therefore, the District was solely responsible for supporting the costs of transportation.

Procedure

Data Collection

The data needed to perform the cost analyses were budget allocations, both federal and local (including transportation), number of students served, and amount of time spent in magnet instructional activities. The data collection procedures followed for gathering each type of information are described below.

Budget Allocations

- The total federal budget allocations for each campus were available from the grant director. The local fund allocations for each campus were published in the AISD's Budget For The Year 1985-86. Although the District's accounting office does not calculate depreciation on capital outlay assets, for evaluation purposes straight-line depreciation was figured in order to more accurately assess one-year costs. The capital outlay allocations were divided by the estimated useful life expectancy to obtain the one-year depreciated value of assets.

The capital outlay allocation amounts used in the computations were current as of July 23.

- The total allocation per campus for the regular instructional costs (including salaries, supplies, and capital outlay) was also available from the 1985-86 budget.

- The cost of transporting transfer students to and from the magnet campuses was obtained from the scheduler in the Department of Student Transportation who arranged the bus routes for the magnet programs. The information was available in June.

Students Served

- For the five elementary programs with a campuswide involvement, the number of students served was calculated from the Average Daily Membership Report, first semester 1985-86, excluding students at grade levels not served.

- For Gullett, the program that selected participants, the original enrollment of magnet students was used as the number of students served, since the number fluctuated very little during the year.

- For the Murchison magnet program, the number used was the average of the spring and fall semester enrollments in the foreign language classes.

- The number of Science Academy students served was calculated as an average of the number who initially enrolled, enrollment at the end of the first semester, and enrollment at the end of April.

- In order to calculate the regularly incurred cost per pupil at each of the magnet campuses, the total allocation per campus (including salaries) was divided by the school enrollment (obtained from the Average Daily Membership Report).

Instructional Time

- The amount of time spent in magnet instructional activities, excluding field trips or special presentations, was determined from the key personnel questionnaires (see Appendix H) and from interviews with the administrators. Magnet instructional time was that time devoted to science, computer, fine arts, and social studies that was considered "magnet" in nature by the administration at each campus.

- At the junior high level, the 55-minute period for the foreign language classes was considered magnet time.

- At the Science Academy, any 55 minute class period taken by an Academy student with an Academy teacher was considered magnet time. A list of course numbers of science, math, and computer classes taught by designated Science Academy teachers was obtained from the Science Academy administration. A SAS computer program was written (see Attachment K-1) to obtain the frequency of Academy students in those classes for each semester.

Analyses

The cost information is expressed in a variety of ways and for local and federal funds separately. The terms used and the method of calculating the number associated with each are defined here.

AVERAGE DAILY MEMBERSHIP: The average number of students served by each magnet program was the average daily membership across the three six-week periods of the first semester. For the secondary programs, enrollment was the average number of participants across both semesters.

TOTAL STUDENT CONTACT HOURS: The total number of minutes of magnet instructional time delivered during the school year was calculated by considering the peculiarities of each program. The total number of hours was calculated by:

(Total Minutes ÷ 60) x Average Daily Membership = Total Student Contact Hours

NUMBER OF FULL TIME EQUIVALENT STUDENTS (FTE): Full-time equivalent students are the number of students who could have been served for a full day every day based on the amount of service time. The equation for its calculation was:

Total Student Contact Hours ÷ 6 (hours per day) ÷ 175 (days per year) = Number of Full Time Equivalent Students

BUDGET ALLOCATIONS: The total amount of money allocated to each campus specifically for the magnet programs is used as the basis for all calculations. Local and federal grant funds are reported separately.

BUDGET ADJUSTED FOR DEPRECIATION: Because the capital outlay portions of the budget allocations were so large, a more realistic picture of the one-year cost of the programs could be obtained by figuring the one-year depreciation value of the capital outlay assets. The estimated useful

life of capital outlay assets was assumed to be five years. Using a straight-line depreciation method, adjusted budget allocations were figured as follows:

(Allocation - Capital Outlay Allocation) + (1/5 x Capital Outlay Allocation) = Budget Adjusted for Depreciation

COST PER STUDENT: The amount expended per student above the District's per pupil expenditure was calculated for each program. For those programs for which discrete amounts of magnet instructional time was impossible to calculate, no amount other than cost per student could be reported. Cost per student was calculated by:

Allocation ÷ Average Daily Membership = Cost Per Student

ADJUSTED COST PER STUDENT: The per student expenditure was recalculated using the adjusted budget allocation:

Budget Adjusted for Depreciation ÷ Average Daily Membership = Adjusted Cost Per Student

COST PER STUDENT CONTACT HOUR: Those programs for which instructional time could be calculated, a cost per single hour was calculated by:

Allocation ÷ Total Student Contact Hours = Cost Per Student Contact Hour

ADJUSTED COST PER STUDENT CONTACT HOUR: The adjusted cost per hour was figured in the same way as the adjusted cost per student:

Budget Adjusted for Depreciation ÷ Total Student Contact Hours = Adjusted Cost Per Student Contact Hour

COST PER FTE: The cost for serving the number of full-time equivalent students was calculated by the following equation:

Allocation ÷ Number of FTEs = Cost Per FTE

ADJUSTED COST PER FTE: Likewise, using the allocation adjusted for capital outlay depreciation:

Budget Adjusted for Depreciation ÷ Number of FTEs = Adjusted Cost Per FTE

REGULAR COST PER PUPIL: In Figure K-2, the cost of providing regular instruction to one student for the full year is presented (although the allocation and total students served is not shown). The per-pupil-allocation for regular instruction at the magnet elementary and secondary campuses, including salaries, supplies, and capital outlay, and was calculated by:

Regular Allocation ÷ Total Pupils = Per Pupil Allocation

Results

The local and federal cost information for each campus is presented in Figure K-3, and Figure K-4 presents a summary of the total program costs for each magnet campus as well as an overall summary. The figure below presents a brief summary of the overall program costs. Figure K-1 also includes allocations for program support that were not part of the campus allocations; therefore, the figures presented below are only a very unrefined and general way to present the cost information. Therefore, Figure K-4 makes the distinction between the total campus operating allocation and the grand total which includes the allocations for administration and evaluation.

		ALLOCATION		COST PER PUPIL	
	PUPILS	LOCAL	FEDERAL	LOCAL	FEDERAL
ELEMENTARY	1612	$114,425	$543,286	$ 70.98	$337.03
Transportation	184	$356,542	0	$1,937.73	0
SECONDARY	346	$499,100	$274,676	$1,442.49	$798.86
Transportation	114	$228,514	0	$2,004.51	0
EVALUATION	1958	0	$ 33,952	0	$ 17.34
ADMINISTRATION*	1958	0	$ 92,761	0	$ 47.37
INDIRECT COSTS	1958	0	$ 19,275	0	$ 9.84
TOTALS:					
PROGRAMS	1958	$613,525	$963,950	$ 313.34	$492.31
TRANSPORTATION	298	$585,056	0	$1,963.27	0

*Administration costs also include personnel benefits for some of the part-time campus magnet staff.

Figure K-1. SUMMARY OF LOCAL AND FEDERAL COSTS FOR MAGNET PROGRAMS, 1985-86.

The results revealed that:

- The average per-pupil-allocation for the six elementary magnet programs was $453.36.
- $43,432 of the $346,542 (12.5%) used for transporting the transfer students was to accomodate Gullett's extended day magnet activities by providing late buses.
- Eighty-one percent of the elementary transfer students (184 of 227) requested transportation. Approximately 100 (76%) of 132 transfer students at the Science Academy requested transportation.
- Highland Park Elementary, which ranked fifth in terms of total allocations among the elementary programs and first in terms of the number of students served, had the most cost effective program in terms of per-pupil-allocation and cost per hour or per FTE.
- Although the Science Academy received the largest amount of money, it was more cost effective than some of the elementary programs because more contact hours were provided, although fewer students were served.

To put these program costs into perspective, they were compared to the costs of other compensatory programs offered in AISD. Because of program idiosyncracies, costs may have been calculated in slightly different ways for each program. Therefore, The numbers presented in figure K-2 below should be used as estimates for the purpose of comparing programs. Caution is urged in not overinterpreting these data.

PROGRAM	ALLOCATION	STUDENTS	PER-PUPIL	PER-FTE
Magnet	$ 1,577,475	1958	$ 638*	$ 6,555
Special Education	$26,355,374	5697	$4,626	$ 8,760
Chapter I Regular	$ 2,834,857	4887	$ 580	$ 8,328
Chapter I Migrant	$ 389,342	414	$ 940	$20,787
Aim High (Gifted)	$ 258,884	4884	$ 53	$ 293
Teach & Reach	$ 199,617	200	$ 998	$13,998

Figure K-2. COMPARISON OF MAGNET PROGRAM COSTS TO OTHER COMPENSATORY PROGRAMS OFFERED IN AISD.

The Per-Pupil cost (*) reported for the magnet program is the adjusted cost, which takes into account depreciation for capital outlay assets. The Per-FTE cost is the median across all programs, as an average would be misleading because per-FTE was not available for two campuses.

Discussion

At first glance, the magnet programs appear very expensive. Overall, excluding transportation of transfer students, a total of $1,571,475 was allocated, of which the District's contribution was $613,525, or 39% of the total.

The per-pupil cost based on allocations averaged approximately $403 at the elementary campuses. **The unadjusted average per-pupil cost from local funds was $83, and $320 from federal funds.** While this may seem high, actual costs were lower because the schools were not able to spend all the money that was allocated. Unfortunately, actual costs could not be reported because the final accounting information was not available until after this report was published.

While the elementary programs probably provided as much time in magnet activities as they could with the staff they had, the question must be asked whether the amount of service time could have been increased in order to reduce the cost of the programs, or if magnet-funded staff were being fully utilized. Because some of the language classes at the Murchison program were underenrolled, lower pupil-teacher ratios created hidden costs that were not estimated. More efficient use of staff and funds may have been possible.

The cost analysis for the Science Academy presented problems not encountered by the elementary programs. The Science Academy's local magnet funds supported some resources that were used exclusively for the program and as well as some resources shared with the regular LBJ students. For cost analysis purposes, the perspective was taken that exclusive resources were "add-on" costs to the district and some costs, which were previously funded out of the District's general operating fund, were assumed by the Science Academy.

Because teachers were shared resources, two separate analyses were done on teacher salaries to find the "best estimate" of the local fund costs for the program. While no single method provided the best estimate, two alternatives were considered. First, because nine teachers were funded, yet some also taught regular LBJ classes, ratios based on their teaching load each semester were calculated and multiplied by the average salary used by the district to allocate funds. For example, if a teacher taught five periods a day during one semester, four of which were Science

Academy, then 4/5 was multiplied by $13,250 (half the annual salary) to determine what portion of the salary was used exclusively for the Science Academy.

The second method was based on the fact that five of the nine teachers were paid out of the District's general operating fund in 1984-85. Although they were paid out of local magnet funds in 1985-86, their salaries did not represent an extra or new cost to the District. On the other hand, the remaining four teachers were new to AISD, and their salaries could be considered "add-on" costs that would not have been incurred if the Science Academy did not exist. In the second method, then, the salaries of the four additional teachers were added back into the remaining local funds that were used exclusively for the magnet program.

The cost to the district was determined to lie somewhere within the range of costs established by the two methods of calculations. It should be noted, that because the students spent part of their day with Science Academy teachers, the per-pupil regular cost is an overestimation, as it assumes a student is with a regular teacher each period of the day. **Therefore, the Total Per-Pupil cost shown in Figure K-4 overestimates the cost of educating a Science Academy student.** All cost figures for the Science Academy should be used as guidelines and ranges and not actual costs. It could be argued that some other method would better reflect the cost of the Science Academy; however, more sophisticated methods of cost accounting for the programs would be required. While the methods used are still inadequate, they were the best available methods for doing cost analyses this year.

Furthermore, the per-pupil cost at the Science Academy would have been less if the enrollment had been at full capacity in grades nine and ten. More students could have been accomodated with the present staff, because several courses were underenrolled and some teachers taught four periods a day while others taught five. The original plan allowed 100 students per grade level, but when there were more than 100 qualified students to enter the ninth grade, the enrollment maximum was set at 200 (but was not made official). The reasoning was that 200 should be admitted in order to graduate 100 given an expected attrition of 25 students per year. **Therefore, if the Academy had been at full capacity (400 students in two grade levels), the adjusted cost per pupil would have ranged between $948 and $1,144 compared to $2,180 to $2,629, a savings of 43%.**

Compared to other compensatory programs offered in AISD, the magnet programs were moderate in cost, especially when considering the cost-per-pupil to the District for the elementary programs. However, to accurately estimate the per-pupil cost of these programs to the District, more detailed analyses would need to be performed across the programs since some of them also receive state and/or federal funds.

Compared to other programs in other districts which were funded by a magnet grant, **the estimated per pupil allocation based on grant funds and estimated number of students served was below the national average by nearly $400 ($253 compared to $644).** Per pupil allocations in other districts ranged from $82 to $2,755. So, by these rough estimates, the AISD magnet programs were relatively inexpensive. Appendix L provides more information about programs in other districts.

Caution should be exercised in interpreting the data presented in this appendix, as all costs were based on allocations and not actual expenditures. The number of students served was based on first semester averages and did not account for the day to day entrance and exit of students. Time spent in magnet instructional activities was determined as well as possible from the information provided by the campuses. Time was calculated based on the scheduled time, assuming services were provided on a regular basis from the first to last day of school. Actual fluctuations in schedules or student attendance could not be taken into consideration. Therefore, all numbers were based on the best available estimates and not on final, actual figures.

FIGURE K-3

COST INFORMATION BY CAMPUS

PROGRAM LOCATION:	Brooke Elementary
GRADES:	K, 4-6
INSTRUCTIONAL AREAS:	Fine Arts
AVERAGE DAILY MEMBERSHIP:	325
TOTAL STUDENT CONTACT HOURS:	Unable to calculate
NUMBER OF FULL-TIME EQUIVALENT STUDENTS (FTE):	n/a

	LOCAL	FEDERAL	TOTAL
BUDGET ALLOCATIONS: (Including capital outlay)	$16,355	84,380	100,735
CAPITAL OUTLAY:	$ 500	30,025	30,525
BUDGET ADJUSTED FOR DEPRECIATION:	$15,955	60,360	76,315

	LOCAL	FEDERAL	TOTAL
COST PER STUDENT:	$ 50.32	259.63	309.95
ADJUSTED COST PER STUDENT:	$ 49.09	185.73	234.82
COST PER STUDENT CONTACT HOUR:	n/a		
ADJUSTED COST PER STUDENT CONTACT HOUR:	n/a		
COST PER FTE:	n/a		
ADJUSTED COST PER FTE:	n/a		

Figure K-3. COST INFORMATION BY CAMPUS. Brooke.

How Students Were Served:

Because the magnet activities were so integrated with the regular curriculum, it was impossible to determine a specified amount of time devoted to magnet instruction.

PROGRAM LOCATION:	Bryker Woods Elementary
GRADES:	K-3
INSTRUCTIONAL AREAS:	Outdoor Education, Environmental Studies
AVERAGE DAILY MEMBERSHIP:	224
TOTAL STUDENT CONTACT HOURS:	5,506.5
NUMBER OF FULL-TIME EQUIVALENT STUDENTS (FTE):	5.24

	LOCAL	FEDERAL	TOTAL
BUDGET ALLOCATIONS: (Including capital outlay)	$11,900	85,170	97,070
CAPITAL OUTLAY:	$ 0	30,770	30,770
BUDGET ADJUSTED FOR DEPRECIATION:	$11,900	60,554	72,454

	LOCAL	FEDERAL	TOTAL
COST PER STUDENT:	$ 53.13	380.22	433.35
ADJUSTED COST PER STUDENT:	$ 53.13	270.33	323.45
COST PER STUDENT CONTACT HOUR:	$ 2.16	15.47	17.63
ADJUSTED COST PER STUDENT CONTACT HOUR:	$ 2.16	11.00	13.16
COST PER FTE:	$2,270.99	16,253.82	18,524.81
ADJUSTED COST PER FTE:	$2,270.99	11,556.11	13,827.10

Figure K-3. COST INFORMATION BY CAMPUS. Bryker Woods.

How Students Were Served:

Science Lab

Grade K: (40 students x 30 min @ Wednesday x 36 Wednesdays) ÷ 60 = 720
Grade 1: (63 students x 45 min @ Tuesday x 36 Tuesdays) ÷ 60 = 1701
Grade 2: (59 students x 45 min @ Thursday x 34 Thursdays) ÷ 60 = 1504.5
Grade 3: (62 students x 45 min @ Monday x 34 Mondays) ÷ 60 = 1581
Total Hours = 5506.5

PROGRAM LOCATION:	Gullett Elementary
GRADES:	4-6
INSTRUCTIONAL AREAS:	Science, Computers
AVERAGE DAILY MEMBERSHIP:	160
TOTAL STUDENT CONTACT HOURS:	15,360
NUMBER OF FULL-TIME EQUIVALENT STUDENTS (FTE):	14.63

	LOCAL	FEDERAL	TOTAL
BUDGET ALLOCATIONS: (Including capital outlay)	$28,750	71,876	100,626
CAPITAL OUTLAY:	$ 0	35,764	35,764
BUDGET ADJUSTED FOR DEPRECIATION:	$28,750	43,265	72,014.80

	LOCAL	FEDERAL	TOTAL
COST PER STUDENT:	$ 179.69	449.22	628.91
ADJUSTED COST PER STUDENT:	$ 179.69	270.40	450.09
COST PER STUDENT CONTACT HOUR:	$ 1.87	4.68	6.55
ADJUSTED COST PER STUDENT CONTACT HOUR:	$ 1.87	2.82	4.69
COST PER FTE:	$ 1,965.14	4,912.92	6,878.06
ADJUSTED COST PER FTE:	$ 1,965.14	2,957.27	4,922.41

Figure K-3. COST INFORMATION BY CAMPUS. Gullett.

How Students Were Served:

Science Modules

(160 students x 45 min/day x 4 days/week x 32 weeks) ÷ 60 = 15,360 hours

PROGRAM LOCATION:	Highland Park Elementary
GRADES:	K-3
INSTRUCTIONAL AREAS:	Science, Computers
AVERAGE DAILY MEMBERSHIP:	382
TOTAL STUDENT CONTACT HOURS:	17,652
NUMBER OF FULL-TIME EQUIVALENT STUDENTS (FTE):	16.81

	LOCAL	FEDERAL	TOTAL
BUDGET ALLOCATIONS: (Including capital outlay)	$14,370	81,600	95,970
CAPITAL OUTLAY:	$ 400	36,920	37,320
BUDGET ADJUSTED FOR DEPRECIATION:	$14,050	52,064	66,114

	LOCAL	FEDERAL	TOTAL
COST PER STUDENT:	$ 37.62	213.61	251.23
ADJUSTED COST PER STUDENT:	$ 36.78	136.29	173.07
COST PER STUDENT CONTACT HOUR:	$ 0.81	4.63	5.44
ADJUSTED COST PER STUDENT CONTACT HOUR:	$ 0.79	2.95	3.74
COST PER FTE:	$ 854.85	4,854.25	5,709.10
ADJUSTED COST PER FTE:	$ 835.81	3,097.21	3,933.02

Figure K-3. COST INFORMATION BY CAMPUS. Highland Park.

How Students Were Served:

Science and Computers

Grade K:
(57 students x 2x(30 min/day x 4 days/week x 9 weeks) ÷ 60 = 2,052
Grades 1-3:
(325 students x 2x(40 min/day x 4 days/week x 9 weeks) ÷ 60 = 15,600
Total Hours = 17,652

PROGRAM LOCATION:	Ortega Elementary
GRADES:	K, 4-6
INSTRUCTIONAL AREAS:	Humanities
AVERAGE DAILY MEMBERSHIP:	307
TOTAL STUDENT CONTACT HOURS:	Unable to Calculate
NUMBER OF FULL-TIME EQUIVALENT STUDENTS (FTE):	n/a

	LOCAL	FEDERAL	TOTAL
BUDGET ALLOCATIONS: (Including capital outlay)	$18,250	75,380	93,630
CAPITAL OUTLAY:	$ 0	0	0
BUDGET ADJUSTED FOR DEPRECIATION:	$18,250	75,380	93,630

	LOCAL	FEDERAL	TOTAL
COST PER STUDENT:	$ 59.45	245.53	304.98
ADJUSTED COST PER STUDENT:	$ 59.45	245.53	304.98
COST PER STUDENT CONTACT HOUR:	n/a		
ADJUSTED COST PER STUDENT CONTACT HOUR:	n/a		
COST PER FTE:	n/a		
ADJUSTED COST PER FTE:	n/a		

Figure K-3. COST INFORMATION BY CAMPUS. Ortega.

How Students Were Served:

Because the magnet activities were so integrated with the regular curriculum, it was impossible to determine a specified amount of time devoted to magnet instruction.

85.41

PROGRAM LOCATION:	Sims Elementary
GRADES:	1-3
INSTRUCTIONAL AREAS:	Science, Computers, Drama, Dance
AVERAGE DAILY MEMBERSHIP:	212
TOTAL STUDENT CONTACT HOURS:	5,300
NUMBER OF FULL-TIME EQUIVALENT STUDENTS (FTE):	5.04

	LOCAL	FEDERAL	TOTAL
BUDGET ALLOCATIONS: (Including capital outlay)	$24,800	79,450	104,250
CAPITAL OUTLAY:	$ 0	5,500	5,500
BUDGET ADJUSTED FOR DEPRECIATION:	$24,800	75,050	99,850

	LOCAL	FEDERAL	TOTAL
COST PER STUDENT:	$ 116.98	374.76	491.74
ADJUSTED COST PER STUDENT:	$ 116.98	354.01	470.99
COST PER STUDENT CONTACT HOUR:	$ 4.68	14.99	19.67
ADJUSTED COST PER STUDENT CONTACT HOUR:	$ 4.68	14.15	18.83
COST PER FTE:	$ 4,920.63	15,763.89	20,684.52
ADJUSTED COST PER FTE:	$ 4,920.63	14,890.87	19,811.50

Figure K-3. COST INFORMATION BY CAMPUS. Sims.

How Students Were Served:

$$\text{Grades 1-3: } (212 \text{ students} \times \frac{((30 \text{ min/week} \times 10 \text{ weeks}) + (30 \text{ min/week} \times 10 \text{ weeks}) + (60 \text{ min/week} \times 10 \text{ weeks}) + (30 \text{ min/week} \times 11 \text{ weeks}))}{\text{Dance + Drama + Science + Computers}} \div 60 = 5{,}300 \text{ hours}$$

PROGRAM LOCATION:	Murchison Junior High
GRADES:	7-8
INSTRUCTIONAL AREAS:	Foreign Language
AVERAGE DAILY MEMBERSHIP:	172
TOTAL STUDENT CONTACT HOURS:	27,592
NUMBER OF FULL-TIME EQUIVALENT STUDENTS (FTE):	26.27

	LOCAL	FEDERAL	TOTAL
BUDGET ALLOCATIONS: (Including capital outlay)	$22,000	31,865	53,865
CAPITAL OUTLAY:	$ 0	21,665	21,665
BUDGET ADJUSTED FOR DEPRECIATION:	$22,000	14,533	36,533

	LOCAL	FEDERAL	TOTAL
COST PER STUDENT:	$ 127.91	185.26	313.17
ADJUSTED COST PER STUDENT:	$ 127.91	84.49	212.40
COST PER STUDENT CONTACT HOUR:	$ 0.80	1.15	1.95
ADJUSTED COST PER STUDENT CONTACT HOUR:	$ 0.80	0.53	1.33
COST PER FTE:	$ 837.46	1,212.98	2,050.44
ADJUSTED COST PER FTE:	$ 837.46	553.22	1,390.68

Figure K-3. COST INFORMATION BY CAMPUS. Murchison.

How Students Were Served:

Foreign Language Classes

(172 students x 55 min/day x 175 days) ÷ 60 = 27,592 hours

PROGRAM LOCATION:	Science Academy, LBJ High School
GRADES:	9-11
INSTRUCTIONAL AREAS:	Science, Math, Computers, Technology
AVERAGE DAILY MEMBERSHIP:	174
TOTAL STUDENT CONTACT HOURS:	68,151.42
NUMBER OF FULL-TIME EQUIVALENT STUDENTS (FTE):	65

		LOCAL	FEDERAL	TOTAL
BUDGET ALLOCATIONS: (Including capital outlay, but excluding teacher salaries)		$212,100	242,811	454,911.00
CAPITAL OUTLAY:		$ 60,000	167,075	227,075.00
TEACHER SALARIES:	Method I*	$184,175	0	184,175.00
	Method II**	$106,000	0	106,000.00
BUDGET ADJUSTED FOR DEPRECIATION:				
With Method I Salaries:		348,275	109,151	457,426.00
With Method II Salaries:		270,100	109,151	379,251.00

		LOCAL	FEDERAL	TOTAL
COST PER STUDENT:	Method I	$ 2,277.44	1,395.46	3,672.90
	Method II	$ 1,828.16	1,395.46	3,223.62
ADJUSTED COST PER STUDENT:	I	$ 2,001.58	627.30	2,628.88
	II	$ 1,552.30	627.30	2,179.60
COST PER STUDENT CONTACT HOUR:	I	$ 5.81	3.56	9.37
	II	$ 4.66	3.56	8.22
ADJUSTED COST PER CONTACT HOUR:	I	$ 5.11	1.59	6.80
	II	$ 3.96	1.59	5.55
COST PER FTE:	I	$ 6,096.54	3,735.56	9,832.10
	II	$ 4,893.85	3,735.56	8,629.41
ADJUSTED COST PER FTE:	I	$ 5,358.08	1,679.25	7,037.33
	II	$ 4,155.38	1,679.25	5,834.63

Figure K-3. COST INFORMATION BY CAMPUS. Science Academy

How Students Were Served:

Math, Science, and Computer Courses

Sem 1: (387 sts in 9 courses) x 55 min/day x 89 days ÷ 60 = 31,572.75
Sem 2: (464 sts in 13 courses) x 55 min/day x 86 days ÷ 60 = 36,578.67
Total Hours: 68,151.42

* METHOD I: The ratio of S.A. courses to total courses taught is multiplied by the average salary of $26,500 for each teacher.
** METHOD II: Based on the sum of the average salaries for four teachers.

SUMMARY OF MAGNET SCHOOL PROGRAM COSTS

CAMPUS	PUPILS	TOTAL ALLOCATION	PER PUPIL	ADJUSTED PER PUPIL	PER HOUR	ADJUSTED PER HOUR	PER FTE	ADJUSTED PER FTE	PER PUPIL REGULAR	PER PUPIL TOTAL
BROOKE	325	$100,735	309.95	234.82	N/A	N/A	N/A	N/A	1,776.96	2,011.78
BRYKER WOODS	224	$ 97,070	433.35	323.45	17.63	13.16	18,524.81	13,827.10	2,140.91	2,464.36
GULLETT	160	$100,626	628.91	450.09	6.35	4.69	6,878.06	4,922.41	1,699.85	2,149.94
HIGHLAND PARK	384	$ 95,970	251.23	173.07	5.44	3.74	5,709.10	3,933.02	1,808.09	1,981.16
ORTEGA	307	$ 93,630	304.98	304.98	N/A	N/A	N/A	N/A	1,940.72	2,245.70
SIMS	212	$104,250	491.74	470.99	19.67	18.83	20,684.52	19,811.50	1,642.70	2,113.69
ELEMENTARY AVERAGE	**270**	**$ 98,713**	**453.36**	**326.23**	**12.26**	**10.10**	**12,890.76**	**10,623.51**	**1,834.87**	**2,161.10**
MURCHISON	172	$ 53,865	313.17	143.25	1.95	0.89	2,050.43	937.90	2,027.28	2,170.53
SCIENCE ACADEMY	174	$719,911	3,223.62-3,672.90	2,179.60-2,628.88	8.22-9.37	5.55-6.80	8,629.41-9,832.10	5,834.63-7,037.33	1,859.41	4,039.01-4,488.29
SECONDARY AVERAGE	**173**	**$383,888**	**2,208.05**	**1,601.08**	**6.21**	**4.34**	**6,516.84**	**4,563.19**	**1,943.34**	**3,557.92**
MEDIAN ACROSS MAGNET PROGRAMS	218	$ 98,848	373.26	314.21	8.41	6.24	8,930.65	6,555.44	1,833.75	2,155.52
CAMPUS TOTAL	1958	$1,366,057	697.68	532.82	*	*	*	*	*	*
GRAND TOTAL (+ Admin & Eval)	1958	$1,577,475	805.65	639.55	*	*	*	*	*	*

Figure K-4. COST COMPARISON AMONG MAGNET PROGRAMS IN AISD. Total allocation includes all federal and local magnet funds. Adjusted costs are based on one-fifth of capital outlay funds added to all other funds. Per-Pupil-Regular costs are the normal operating costs to the District, including salaries. The Per-Pupil-Total is the sum of the Per-Pupil-Regular and the Adjusted-Per-Pupil amounts. Because magnet service time cannot be calculated at two campuses, per-hour and per-FTE costs (*) would be overestimated, and therefore were not calculated.

Magnet Schools Assistance Program

Appendix L

COMPARISON WITH MAGNET GRANT RECIPIENTS NATIONWIDE

MAGNET SCHOOLS ASSISTANCE PROGRAM
GRANT RECIPIENTS

Purpose

The 1985-86 Magnet Schools Assistance Program was a competitive grant; therefore, it was of interest to learn about programs supported by federal grant funds in other districts. The purpose of Appendix L is to provide information in response to the following information need:

> **Information Need 4.** How are other urban districts with federally funded magnet programs in 1985-86 implementing programs?

While specific evaluation questions were not formulated in the evaluation design, certain questions seem relevant:

1. How does AISD compare to other districts in terms of the size of the grant awarded?
2. How do AISD's magnet programs compare to other programs in terms of schools involved and students served?
3. How do AISD's programs compare to other programs in terms of a gross estimate of per pupil allocation based on the total grant amount?
4. In terms of program curricula, what are other districts offering students?

Procedure

Data Collection

The program evaluator collected information about the Magnet Schools Assistance Program grant recipients in the following ways:

1. A list of district grant recipients with dollar amounts listed was available from the Department of Education. A copy of the list was obtained from the director of AISD's magnet grant.
2. The grant director attended a magnet program conference in Washington, D.C. and returned with a list of project directors and addresses and brief abstracts describing the programs in each district. This list was used for constructing the table in Figure L-1.

Analyses

Descriptive statistics were used to compare AISD's grant award with the grants awarded to other recipients. Measures of central tendency were used to identify AISD's position relative to all other grants.

Results

Under the Magnet Schools Assistance Program, the Department of Education distributed $75,030,000 in grant awards.

Grant Size

- Forty-four districts in twenty states were recipients.
- Grant awards ranged from a low of $214,179 to a high of $4,000,000. Four grants of four million each were awarded.
- The median grant amount was $1,008,196, and the average amount was $1,705,227.
- AISD's grant ranked 24th in terms of the dollar amount of the award, or half a standard deviation below the mean.

Students Served

- Of the districts reporting an estimated number of students served, the average was 4,522 students, and the median was 3,000. Districts reported a range of 300 to 19,000 estimated students served.
- AISD scored just below the mean on the number of estimated pupils served by magnet programs in each district, but above the median. Although the number actually served was closer to 2,000, the estimate of 3,800 was used, since the actual number served by other districts was not known for comparison purposes.

Schools Served

- In terms of the number of elementary magnet schools, the overall average was six, with three schools the median. The average number of secondary schools served was 3.39 and a median of two. In comparison, Austin served six elementary and two secondary schools.

Curriculum Foci

- Austin's programs addressed seven different curriculum foci compared to a national average of 4.79. Science/Technology magnet programs were the most frequently offered.

Per Pupil Allocation

- Based on the 38 districts reporting the estimated number of students served, the estimated average per pupil allocation was $645, with a standard deviation of $594.76. The range was from a low of $82.10 to a high of $2,755.10. Austin's per pupil estimated allocation was $253.67, which was more than half a standard deviation below the mean. More detailed information on Austin's per pupil costs can be found in Appendix K.

Discussion

Compared to the other 43 districts that received federal funds for magnet schools, the Austin ISD ranked below the median in terms of:

- Dollar amount of grant, and
- Estimated per pupil allocation,

but ranked above the median in terms of:

- Estimated number of students served,
- Number of elementary schools served, and
- Number of curriculum areas offered.

Because the actual number of students served was about half as many as were estimated (1958 compared to 3800), the actual per pupil allocation based on grant funds alone was much higher than the estimated $253.67. Excluding administrative and evaluation funds, the average per pupil allocation for instruction at the eight campuses was $437.97, with a range of $185.26 at the Murchison Foreign Language magnet to $1,395.47 at the Science Academy. Including all federal magnet funds, the per pupil allocation was $492.31.

Cost comparisons among districts are to be used as a general guideline and should be interpreted very cautiously, as the difference between the proposed and actual number of students served may be substantial for some districts, as it was in AISD.

FIGURE L-1

MAGNET GRANT RECIPIENTS BY SIZE AND AREA OF FOCUS

MAGNET SCHOOLS ASSISTANCE PROGRAM GRANTS

GRANT RECIPIENT	AMOUNT	RANK	PUPILS	COST PER PUPIL	ELEM	SECD	SCIENCE /TECHNOLOGY	MATHEMATICS	COMPUTERS	LANGUAGE ARTS	HUMANITIES /SOCIAL STUDIES	MULTICULTURAL /FOREIGN LANGUAGE	VOCATIONAL /BUSINESS	COMMUNICATION ARTS	CREATIVE/VISUAL ARTS	PERFORMING ARTS	BASIC SKILLS
Montgomery Public Schools Montgomery, Alabama	294,605	41	3,000	98.20	0	2	•								•	•	
Huntsville City Schools Huntsville, Alabama	238,739	42	500	477.48	1	0			•	•					•	•	
Birmingham City Schools Birmingham, Alabama	1,025,872	21	8,900	115.26	16	0	•	•		•		•	•		•	•	
Phoenix Elementary School District #1, Phoenix, Arizona	366,053	37	300	1220.17	0	2	•	•	•					•	•	•	
Maricopa County District #40 Glendale, Arizona	222,841	43	300	742.80	2	0	•	•	•					•			
Little Rock School District Little Rock, Arkansas	2,595,182	15	1,000	2595.00	2	1	•								•	•	•
Long Beach Unified School District Long Beach, California	922,291	25	?	?	3	2	•	•	•				•				
Stockton Unified School District Stockton, California	969,325	23	3,200	302.90	?	(7) ?						•			•	•	•
National School District National City, California	214,179	44	1,000	214.18	2	0		•	•						•	•	
San Diego Unified School District San Diego, California	3,100,783	13	?	?	4	1		•		•	•				•	•	
Denver Public Schools/District #1 Denver, Colorado	2,851,532	14	1,035	2755.10	3	1			•			•	•				•
Bibb County Board of Education Macon, Georgia	677,513	27	1,000	677.51	3	0	•	•		•	•	•			•	•	

Figure L-1. MAGNET GRANT RECIPIENTS BY SIZE AND AREA OF FOCUS. (Page 1 of 4)

GRANT RECIPIENT	AMOUNT	RANK	PUPILS	COST PER PUPIL	ELEM	SECD	SCIENCE /TECHNOLOGY	MATHEMATICS	COMPUTERS	LANGUAGE ARTS	HUMANITIES /SOCIAL STUDIES	MULTICULTURAL /FOREIGN LANGUAGE	VOCATIONAL /BUSINESS	COMMUNICATION ARTS	CREATIVE/VISUAL ARTS	PERFORMING ARTS	BASIC SKILLS
Chicago Public Schools Chicago, Illinois	4,000,000	1T	?	?	20	9	•	•			•		•	•	•		•
Indianapolis Public Schools Indianapolis, Indiana	3,972,596	7	3,000	1324.20	6	4	•	•				•	•		•	•	•
Grambling State University Lab School Grambling, Louisiana	366,399	36	400	915.99	(1 K-12)		•	•						•			
Grand Rapids Public Schools Grand Rapids, Michigan	400,515	34	?	?	1	0											•
St. Paul Public Schools St. Paul, Minnesota	1,540,083	17	2,000	770.04	6	0	•	•			•	•			•		
Minneapolis Public Schools Minneapolis, Minnesota	377,683	35	4,600	82.10	0	3	•				•				•		
St. Louis Board of Education St. Louis, Missouri	3,991,750	6	6,300	633.61	10	6	•	•				•	•		•	•	
Omaha Public Schools/District #1 Omaha, Nebraska	541,931	28	4,000	135.48	0	2	•		•				•				
Montclair Public Schools Montclair, New Jersey	1,510,243	18	3,500	431.49	6	2	•					•			•	•	•
Bayonne City School District Bayonne, New Jersey	501,688	30	500	1003.37	3	0	•		•	•			•				
Teaneck Board of Education Teaneck, New Jersey	1,008,196	22	4,100	245.90	?	?	•								•	•	
NYC Board of Education Community School District #15 Brooklyn, New York	525,204	29	1,100	477.45	0	5	•	•				•	•	•			
Rochester City School District Rochester, New York	3,992,880	5	10,000	399.28	12	10	•	•	•		•		•			•	

Figure L-1. (Continued, Page 2 of 4)

GRANT RECIPIENT	AMOUNT	RANK	PUPILS	COST PER PUPIL	ELEM	SECD	SCIENCE /TECHNOLOGY	MATHEMATICS	COMPUTERS	LANGUAGE ARTS	HUMANITIES /SOCIAL STUDIES	MULTICULTURAL /FOREIGN LANGUAGE	VOCATIONAL /BUSINESS	COMMUNICATION ARTS	CREATIVE/VISUAL ARTS	PERFORMING ARTS	BASIC SKILLS
Buffalo City School District Buffalo, New York	4,000,000	1T	15,500	258.06	11	7	●	●	●			●	●			●	●
Community School District #21 Brooklyn, New York	3,328,248	12	9,300	357.87	4	6	●		●		●			●	●	●	
Community School District #22 Brooklyn, New York	3,548,650	11	17,500	190.18	15	5	●	●	●			●		●	●	●	
Community School District #4 New York, New York	1,198,231	20	1,000	1198.23	2	2	●		●	●	●				●	●	
Newburgh City School District Newburgh, New York	1,606,702	16	1,900	845.63	4	1	●	●	●	●							●
Community School District #2 New York, New York	319,948	39	500	639.89	0	1								●		●	
Community School District #18 Brooklyn, New York	3,576,551	10	10,000	357.65	6	3	●						●	●			
Columbus Ohio City Schools Columbus, Ohio	4,000,000	1T	4,600	869.56	7	3	●	●	●	●		●	●				
Greenhills-Forest Park City School District Cincinnati, Ohio	360,765	38	1,700	212.21	3	1	●	●	●					●	●		
Cleveland Heights City Schools University Heights, Ohio	451,025	33	2,800	161.08	8	0						●		●	●		
Cleveland City School District Cleveland, Ohio	1,407,679	19	5,000	281.53	0	3							●		●	●	
School District of Pittsburgh Pittsburgh, Pennsylvania	3,935,297	9	4,200	936.97	4	6	●	●			●	●	●				
Providence Public School Department Providence, Rhode Island	304,860	40	?	?	2	0	●					●					

Figure L-1. (Continued, Page 3 of 4)

GRANT RECIPIENT	AMOUNT	RANK	PUPILS	COST PER PUPIL	ELEM	SECD	SCIENCE /TECHNOLOGY	MATHEMATICS	COMPUTERS	LANGUAGE ARTS	HUMANITIES /SOCIAL STUDIES	MULTICULTURAL /FOREIGN LANGUAGE	VOCATIONAL /BUSINESS	COMMUNICATION ARTS	CREATIVE/VISUAL ARTS	PERFORMING ARTS	BASIC SKILLS
Houston Independent School District Houston, Texas	486,676	31	500	973.35	1	0	●	●	●								
Dallas Independent School District Dallas, Texas	888,664	26	2,800	317.38	?	8	●				●		●	●	●	●	
Austin Independent School District Austin, Texas	963,950	24	3,800	253.67	6	2	●	●	●		●	●			●	●	
Seattle Public Schools Seattle, Washington	3,958,592	8	12,000	329.88	40	14	●	●					●		●	●	
Tacoma School District #10 Tacoma, Washington	486,079	32	?	?	8	3	●	●	●		●	●		●		●	●
Milwaukee Public Schools Milwaukee, Wisconsin	4,000,000	1T	19,000	210.52	18	24	●	●	●		●	●	●	●	●		
TOTAL	75,030,000		171,835	24,508	239	139	35	25	20	8	13	18	18	14	26	24	10
MEAN	1,705,227		4,522	644.94	5.9	3.4											
MEDIAN	1,008,196		3,000	415.39	3.0	2.0											
STANDARD DEVIATION	1,487,450		4,894	597.76	7.6	4.6											

Figure L-1. (Continued, Page 4 of 4)

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